THE INFLUENCE OF ELEARNING ON STUDENTS AT A UNIVERSITY OF TECHNOLOGY IN THE WESTERN CAPE

BY

NOKONWABA WANANA

Thesis submitted in fulfilment of the requirements for the degree:

Master of Technology: Business and Information Administration.

In the Faculty of Business and Management Sciences

At the Cape Peninsula University of Technology

Supervisor: Dr Lynn Kleinveldt

District Six Campus

15 September 2023

DECLARATION

I, Nokonwaba Wanana, declare that the content of this thesis/dissertation represents my own unaided work, and that the thesis/dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

N. Wanana **15 September 2023.**

ABSTRACT

All industries were impacted worldwide by the COVID-19 pandemic, and especially so, higher education. To rescue the 2020 academic year, higher education institutions had to resort to emergency online teaching and learning activities. Fortunately, the advancement in technology provided the opportunity for universities to quickly adapt to online teaching and learning during the pandemic. In addition, funding was provided to support students who had no access, with data and devices. However, the existence of the digital divide was a reality for many students who needed to stay home, where geographically not all areas had the ICT infrastructure in place to accommodate the new teaching model. Therefore, this study aims to characterize the elements that influence students' eLearning experiences at a University of Technology in the Western Cape. Using a mixed approach, a survey questionnaire was distributed among second- and third-year students enrolled for the Business Applications subject in the Business and Information Administration Programme within the Business and Management Sciences faculty. A total of seventy-three responses were received. The closed-ended responses were analysed using NCSS 2021 Statistical Software (2021) and the open-ended responses were analysed using content analysis. The findings revealed that students had mixed feelings about online teaching and learning activities. Some of the students' academic performance improved due to eLearning. The biggest challenge for some students, was load shedding; it disrupted their connection during eLearning, which affected their learning process. The recommendations made included:

- that the university of technology continue to follow a blended learning approach in the future, to accommodate different student learning styles.
- a specific help desk where staff, lecturers, and students can get 24/7 technological support for all eLearning activities.

It is intended that the results may shed light on how online teaching and learning affects students' academic performance for other departments and faculties.

Key words: eLearning, Higher education, undergraduate students, academic performance.

ACKNOWLEDGEMENTS

I want to thank:

Dr. Kleinveldt for pragmatic advice, continuous commitment, support, and sharing her knowledge to complete this project. If I had to design my perfect supervisor, I could not have created a better person, I really achieved a lot from the guidance received from my supervision.

The Department of Business and Information Administration, Faculty of Business and Management Sciences, Cape Peninsula University of Technology. I am sincerely thankful for giving me the opportunity to be part of this incredible Master of BIA programme.

My Aunt, Nompiliso Wanana, who fought for me to get a better education in Cape Town.

My Aunt, Ms. Nikelwa Wanana, for providing me with parental guidance during my time of greatest need.

My Aunt Ms, Hombakazi Wanana for her unwavering moral support during my academic pursuit of my master's degree.

My Brother Vuyo Wanana who believed in me even when I was doubting myself.

DEDICATION

I dedicate my dissertation work to my late parents, Mr. Zingisile Wanana and Mrs Nothemba Ivy Wanana. I am especially appreciative of my friends and family, whose encouragement and persistence never cease to amaze me. My Aunt Nikelwa Wanana, Hombakazi Wanana, and my Brother Vuyo Wanana are incredibly important to me and have never left my side. This dissertation is also dedicated to, the siblings of my father, who raised me as their own after losing both of my parents. Nosakhele Joko, the late Midas Wanana, Nompiliso Wanana, Lindekile Langeni, Zimama Wanana, and Siyabonga Langeni, who have prayed for me and supported me along my academic path. I will always be grateful for what they have done for me.

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LIST OF ACRONYMS

CPUT - Cape Peninsula University of Technology

BIA - Business and information administration

4IR - Fourth Industrial revolution

DICT- Department of Information and Communications Technology

GPS- Global Positioning System

CBT- Computer-Based Training

ICT- Information and Communication technologies

CML- Computer-managed learning

CAI- Computer-assisted instruction

LMS- Learning management systems.

VET - Vocational Education and Training

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Introduction

The rapid advancement of digital technologies has opened new avenues for educational delivery, reaching larger and more diverse populations of learners. According to Ali (2020), eLearning has revolutionized higher education around the world. The Internet provides opportunities for flexible eLearning to meet educational outcomes (Manna et al., 2021).

eLearning can be described as the use of digital technology to provide educational content and facilitate interactive learning experiences (Ferri et al., 2020) through digital technology, video conferencing, and learning management systems by being connected to the Internet (Firdaus et al., 2022:188).

In Africa, there is an increasing demand for the use of eLearning platforms. Sinha and Bagarukayo (2019) explored the implementation of eLearning in Uganda, highlighting the potential for expanded reach and improved quality in educational provision. According to Moonasamy and Naidoo (2021), the influence of eLearning in Africa is not without its challenges, including issues related to infrastructure, connectivity, digital literacy, and sociocultural factors.

In South Africa, these approaches are particularly relevant, given the challenges of expanding access to education in geographically vast and economically diverse regions (Dlamini & Ndizinisa, 2020). The implementation of eLearning in higher institutions of learning across the continent has varied, with South Africa leading the way in its implementation and research (Bagarukayo 2015; Queiros, 2016). However, there is still much discussion over how eLearning affects and influences higher education and in particular, the academic performance of students.

Simamora (2020) examined the influence of eLearning in South Africa, highlighting its potential to overcome barriers related to geographic location, financial constraints, and limited institutional capacity. Devkota (2021) emphasises that eLearning has successfully supported more inclusive education, enabling students from rural and

disadvantaged areas to access higher education. Furthermore, it was found that eLearning platforms in South Africa facilitate enhanced learning experiences and improved student engagement (Martin & Borup, 2022).

The Covid-19 pandemic has affected various industries, including tertiary institutions, (Toquero, 2020). As a result, in accordance with Sections 27(1) and 27(2) of the Disaster Management Act, the South African government proclaimed a national state of disaster on March 15, 2020. According to Landa et al. (2021), the Covid-19 pandemic has forced many educational institutions to switch to remote learning, making eLearning a hot topic in current affairs. For this reason, emergency online teaching was required to save the academic year of 2020 in higher education institutions.

eLearning has many advantages, including more flexibility, access to a larger selection of courses and programs, and the opportunity to learn at one's own speed. It may, nevertheless, also be less expensive than conventional classroom-based instruction (Mohammed, et al., 2020). On the other hand, eLearning comes with drawbacks as well, like the requirement for excellent time management and self-motivation, little opportunity for peer and instructor interaction, and possible technological issues. Students that are successful in eLearning need to be self-disciplined and possess strong organizational and time management abilities. In addition, lecturers and educational institutions must support students with the necessary facilities and assistance required to succeed, as well as ensuring the quality of the online education is excellent (Dumford & Miller, 2018: 463).

In conjunction with eLearning are Massive Open Online Courses (MOOCs), which are “free open-access courses” (MOOC.org,2023) provided by universities and other institutions, are one of the factors driving the rise of eLearning. High-quality educational resources are becoming more widely available through MOOCs (Jansen et al., 2017: 27). Furthermore, it enables students to interact with instructors virtually and enrol in the top colleges in the world (Algonac’s et al., 2020: 1161). Online learning has generally grown in importance within higher education institutions, giving students globally more access to education and new opportunities.

The aim of the study is to establish how eLearning influenced students' academic performance at a higher educational institution in the Western Cape.

1.2 Background on Online Teaching and Learning at a University of Technology in the Western Cape

The selected institution is a leading higher educational institution located in Cape Town and is the Western Cape's sole university of technology. It was founded on January 1, 2005, after the merger of the former Cape Technikon and Peninsula Technikon. This merger changed South Africa's higher education system which was in line with the national transformation process (Cape Peninsula University of Technology, 2008). During this period, the institution also introduced an eLearning environment called Blackboard. A study conducted at this institution focused on blackboard to promote and enhance "online teaching and learning, sharing, and collaboration between students and educators" and therefore, findings revealed that a mixed learning method was followed (Kleinveldt, Schutte & Stilwell, 2016). Firdoussi et al. (2020) state that the Covid-19 pandemic forced higher education institutions to use the eLearning method to reduce the spread of the virus amongst the students.

1.3 Problem statement

Electronic learning had an impact on the academic achievement of students in higher education institutions (Kajee & Balfour, 2011; Hazwani et al., 2020; Gocotano et al., 2021). Hazwani et al. (2020) reported that the implementation of eLearning has been a benefit to some students but had an adverse influence on the performance of those from disadvantaged backgrounds. Furthermore, it was revealed that many students from disadvantaged backgrounds worked with computers for the first time when they entered university. This meant that eLearning was a foreign concept for these students, as they had no exposure at an early age.

Data from the Department of Information and Communications Technology (DICT) (2017) indicates that families in urban areas connect to the Internet more frequently

than those in rural areas. Adding to the challenge is limited Information Technology infrastructure as indicated in the following report by Dudla (2023):

> Although most network towers in South Africa have a battery backup, more sophisticated systems are less common. For instance, MTN has 12,900 towers in South Africa, but only about 3,000 of those are equipped with diesel generators, and on a few test sites, solar panels.

This means that the existence of the digital divide was a reality for many students who found themselves needing to remain at home geographically (Krige, 2023; Kajee & Balfour, 2011). Considering the purpose of eLearning is to provide access to quality education no matter where a learner is situated, Krige (2023) emphasised a key point to ensure this is achieved successfully:

If the issues of digital literacy and the digital divide can be resolved, students in underprivileged and remote areas will have the chance to receive an education that is comparable to that of students in upscale cities, as well as extra educational materials that may not be offered at their neighbourhood schools.

Therefore, this study's objective was to gather data on how eLearning influenced students at one university of technology in the Western Cape.

1.4 Rationale and significance of the study.

The significance of this research was in determining how eLearning affected students' academic performance at a higher education institution in the Western Cape. The outcome of the study contributed to the existing knowledge and conceptual frameworks that suggest the improvement of eLearning in South African universities (Brown et al., 2022). The strategies discovered by the researcher provided a thorough explanation of the case study conducted, and to provide insight for other South African universities. In addition, this study provides the South African education system insight into student readiness, adaptation, and response to eLearning. Furthermore, information gathered expands the body of knowledge on how eLearning can be applied better in different institutions.

According to Boys and Ford (2023), the educational system must adapt to the demands of the global, massive corporate, and virtual universities as well as to the new competition. Nevertheless, the issues associated with the change must be thoroughly recognized and considered before the transition occurs. The advantages of eLearning are acknowledged by scholars such as Muller et al. (2021:19), who also reported that the implementation of an eLearning program has a wide range of consequences. In order to meet the varied needs of students, the educational system must become more flexible and high-quality. It therefore requires customizing courses to fit students' varying goals and needs. Studies such as these also have an impact on lecturers to modify their teaching methods in order to adapt to the changing learning styles of their students. Therefore, the rationale of this research was to find out how eLearning influenced the academic performance of students enrolled for a practical subject at the selected higher education institution, to improve teaching and learning practices.

1.5 Research aim and objectives of the study.

The study aims to describe the influence of eLearning on students from a University of Technology in the Western Cape.

To achieve this aim, the following objectives were formulated to:

i. Determine the influence of eLearning on students from a University of Technology in the Western Cape.
ii. Explore the benefits of eLearning on students from a University of Technology in the Western Cape.
iii. Recommend strategies to improve the performance of students with eLearning at a University of Technology in the Western Cape.

The main research question is : what is the influence of eLearning on students from the selected University of Technology in the Western Cape? The main research question led to the following sub-questions for this research study:

i. How does eLearning influence students from the University of Technology in the Western Cape?

ii. What are the benefits of eLearning for students from the University of Technology in the Western Cape?
iii. What can be done to improve the performance of students during eLearning at the University of Technology?

These objectives guided the researcher in reviewing the literature in an attempt to find answers, and to identify strategies that can assist students' performance in higher educational institutions.

1.6 Literature review.

The opportunity to critically evaluate and summarise the material already available on the area of study is provided by the literature review. It allows the researcher to identify factors to make informed decisions (Fink, 2019). A comprehensive literature review also provides the historical context and structure needed in which to place the new study.

In Chapter 2 the concepts were framed on the following:

- History of eLearning
- Types of eLearning
- eLearning integrations into higher educational system
- Unfamiliar perspective of eLearning

1.7 Research Design and Methodology

1.7.1 Research design

A research design can be defined as a strategy of how the researcher will conduct the research (Mouton, 2001: 55-65; Kothari, 2004: 31), where the researcher focuses on the product. The current study used a descriptive research design, which, according to Farrell and Shafiei (2012: 1428), is a suitable choice when the purpose of the study is

to is to identify characteristics, incidences, trends, and classes. It is useful when not much is known about the subject or problem of the research. The advantages of integrating the current design and methodology include addressing the various goals of this empirical study, introducing fresh perspectives that either approach would not be able to offer, and eliminating biases.

1.7.2 Research methodology

Research methodology can be identified as the universal technique adopted by the researcher in researching the problem (Leedy & Ormrod, 2005: 12). The Mixed approach was applied in this study. The target population was second- and third-year students who are registered for the practical subject, Business Applications, in the Business Information & Administration programme, which was chosen as the focus area.

1.7.3 Data collection instruments

The term "data collection instruments" refers to the tools used to gather data, including checklists, tests, questionnaires, and planned interview schedules (Seaman 1991:42). The primary means of gathering data for this study was to administer an online questionnaire. The questionnaire was regarded as useful since information could be acquired in an anonymous and private manner and stored for later use. Therefore, this data could be transformed into information and could be reviewed if new questions about the research arise. The questionnaire encouraged widespread participation and gave respondents the chance to voice their opinions about the subject at hand without worrying about negative consequences. Following construction, the questionnaire was piloted and modified based on reviewers' feedback before being distributed to the target audience. A study conducted by Bahasoan et al. (2022:20) which also used the survey in their research study, informed the current research project. Since the researcher used some Likert scale statement in the questionnaire of this study, reliability had to be established; this was done and is discussed in detail in Chapter 3.

1.8 Data Analysis

Data analysis is described as the technique of analysing and interpreting the data (Tolley et al., 2016: 65). The researcher consulted a statistician from the Research department of the Cape Peninsula University of Technology to analyse the close-ended questionnaires using the NCSS 2021 Statistical Software (2021) for the cross tabulations. The Chi-square test for independence was used and the p-values observed.

1.9 Clarification of terminology

This section deals with the clarification of the following terms: eLearning, face to face learning, students, higher education institute and academic performance. To ensure that the reader has a thorough understanding of the essential words used in this study, these terms have been defined. Some of these words will be covered in more detail in the following chapter.

eLearning

eLearning is a type of education that happens wholly or mostly online (Kabage & Sanga, 2022: 28). Moreover, eLearning is the term used to describe any kind of pedagogy that is offered using digital technology (Tu, 2002: 34). These methods incorporate visual graphics, audio, video, animation, and text. Furthermore, online pedagogy can support both group learning and the assistance of academics in specific areas (Harandi, 2015:425). Another approach to look at eLearning is as a logical progression of distance learning, which has always profited from the newest tools available in the field of educational technology. Though highlighting important distinctions between the two and emphasizing a crucial premise, some authors believe that eLearning represents a new generation of remote education. Garrison and Anderson (2005:7) claimed that "eLearning does not represent more of the same it is about doing things differently''.

Therefore, the working definition for this study is that eLearning, also referred to as online learning, is the acquisition of knowledge that takes place by engaging with teaching and learning activities, through electronic technologies. In simple terms, learning is enabled electronically over the internet.

Student

This is an individual who is engaged in formal learning education within a higher educational institution such as a college or university (Schulmeister, 2010). In this study, students refer to the 2nd and 3rd years who are registered for the Business Application module.

Higher Education

Higher education refers to any institution that provides higher education on a full-time, part-time or distance basis (SAQA, 2010). A higher education institute, often referred to as a higher education institution (HEI), is an establishment that provides education and academic programs beyond the secondary level. The Department of Higher Education and Training (DHET, 2012) further states that these institutions offer a wide range of courses, programs, and degrees that are designed to further students' knowledge, skills, and expertise in various academic disciplines. Higher education institutes play a crucial role in preparing individuals for careers, advanced research, and personal growth.

Academic performance

Academic performance is one of the indicators of an individual’s learning ability (Ellis et al., 2019). Furthermore, academic performance is the benchmark used to assess a student's ability to successfully complete a registered course (Tadese et al., 2022). The study makes use of and comprehends this definition.

1.10 Chapter layout

The research study is divided into six chapters.

Chapter 1 covers the introduction and background of the study, describing the problem statement, rationale and the significance of the study, objectives of the study, the main research question, sub-questions, research methodology, and the clarification of terms. Chapter 2 concentrated on the literature evaluation which helps in answering the research questions in exploring the existing literature on eLearning in higher educational institutes. Chapter 3 discussed the data-collection phases, designs, and processes utilised in this study as well as ethical considerations. Chapter 4 presented a detailed report of findings and an analysis of the results. In chapter 5, the interpretation of the results was discussed in detail. Chapter 6 concluded the study and provided recommendations for the institute and future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter 2 reviewed the literature that attempted to find answers to the research problem and the questions in this study. According to Lim et al., (2022), literature review consists of a summary, categorization, and comparison of previous research studies, reviews of literature, and theoretical articles in order to provide a critical analysis of a portion of the published body of knowledge. In addition, a literature review allows the reader to understand how the latest findings compare to previous research in each field. From this, it can be seen how the reported studies reveal deficiencies or already identified problems (Fink, 2019).

The research problem of this study, as discussed in Chapter 1, is the performance of students at higher education institutions that has been influenced by eLearning. The findings of the literature revealed that there is a need to explore how eLearning influences the academic performance of students in higher education (Hazwani et al., 2020; Gocotano et al., 2021). Hazwani et al. (2020) reported that the implementation of eLearning has been a benefit to some students but had an adverse influence on the performance of those coming from disadvantaged backgrounds. Furthermore, it was revealed that many students from disadvantaged backgrounds worked with computers for the first time when they entered university.

This meant that eLearning was a foreign concept for these students, as they had no exposure at an early age. According to Reddick et al. (2020), urban families have a more efficient Internet connection rate than rural households. As mentioned earlier, this meant that the existence of the digital divide was a reality for many students who found themselves needing to remain at home geographically (Peters, 2020). This chapter will provide a discussion of the influence of eLearning on students, the history of eLearning, the Fourth Industrial Revolution, types of eLearning, guidelines for enhancing the implementation of eLearning, different perspectives of eLearning, and the blended /hybrid teaching and learning approach.

2.2 History of eLearning

Rehman and Wag (2018:622) assert that the word' eLearning has only been in use since 1999, when it was first used at a symposium on Computer-Based Training (CBT) systems. Other terminologies, such as 'virtual learning' and 'eLearning', began to appear in pursuit of a more precise definition. However, the essential concepts behind eLearning have a long history; in fact, there is evidence that the first iteration dates to the 18th Century. eLearning technologies and delivery techniques expanded in the 1980s because of the development of computers and the Internet in the second half of the 20th Century. In the 1980s, the first Apple Mac was developed, making it feasible for people to own computers in their homes and facilitating the learning of specific subjects and the development of specific skills. Virtual learning environments then started to flourish, as people had access to a multitude of online resources and eLearning opportunities during the following ten years (Li, 2018: 408- 425).

The Internet, as well as a revolution in information technology, has propelled human society forward. Today, the emphasis has shifted away from industry, and toward information. The appearance of information technology was the most significant event at the turn of the century. Information technology became rapidly ingrained in all aspects of society. Education is no exception, apparent in use of multimedia and networking was encouraged (Trauth-Goik, 2021: 75).

Online Distance education dates to the 18th Century when print-based correspondence courses were first offered in the United States. The growth and expansion of correspondence education began in the middle of the 19th Century in both the United States and Europe (Great Britain, France, and Germany). The English founder of shorthand, Isaac Pitman, is widely credited with being the first to employ correspondence courses (Sathish Kumar, 2022).

Multimedia network education is how some academics describe 21st Century education. Every nation on earth accepts and supports educational information. According to the National Centre for Education Statistics, there were eighteen million students globally enrolled in a type of online programme in 2008, an increase of 1.6% from 2002 (Levy & Schellenberg 2021). Information and communications technology

(ICT) in education swiftly gained popularity “due to the widespread use of the World Wide Web and its rapidly growing number of applications in the 1990s” (Merriam & Baumgartner, 2020).

These emerging technologies present opportunities for students at conventional training institutions. The educational system, teaching techniques, and other aspects of the field are changing. This change led to the creation of eLearning. The use of ICT breakthroughs for distance education, or eLearning as it is now more generally called, has become universal.

According to Phillips (2021: 43), distance learning programmes were able to educate pupils on subjects or skills even before the Internet was invented. Furthermore, it was highlighted that Isaac Pitman taught his students shorthand through correspondence in the 19 centuries. Salama et al. (2020: 45) claim that secretaries, journalists, and other people who frequently took notes or wrote frequently, adopted this type of symbolic writing because it sped up production. Pitman, a certified teacher, used the same method to send more tasks to his students for completion, as well as to receive finished ones (Nazarchuk, 2019: 69).

The first eLearning measurement tool was created in 1924, to assess students’ abilities. According to a planned curriculum, higher education institutions might have instructed students using the "teaching machine", which Harvard Professor BF Skinner created in 1954 (Niemiec & Walberg, 1989: 273). The first computer-based training programme, however, was not made public until 1960. Plato, or Programmed Logic for Automated Teaching Operations, is the acronym for this computer-based training programme, also referred to as a CBT programme. It was initially created with students at the University of Illinois in mind, and it is currently used by institutions in this area (Naim and Alahmari, 2020).

As the 1970s went on, eLearning evolved into a more interactive style from the initial systems that were solely intended to provide students with information. The Open University in the UK actively embraced eLearning (Van Wart et al., 2020: 18). Their system of education has traditionally placed a heavy emphasis on distance learning. Students used to receive their course materials and communication from their tutors

by mail. A study revealed that the Open University was able to provide the students with interactive teaching and learning experiences and email communication through the development of the internet (Tejedor et al., 2021).

2.3 Types of eLearning.

eLearning is the phrase employed to explain the delivery of educational content and learning facilitation using technology. The following are the common types of eLearning available.

2.3.1 Computer-managed learning (CML)

Within a computer-managed learning environment, educators use computers to set goals and evaluate students' progress (Evans, 2022). Computer-managed learning systems can produce assessments, analysing test results, and maintaining records of learners' progress, among other tasks (Sly & Rennie, 1999). These systems' rating factors enable the learning process to be customized to each student's unique preferences. According to Salama, et al. (2020), educational institutions also employ CML systems to store and retrieve curricular information, training materials, and lecture notes.

2.3.2 Computer-assisted instruction (CAI)

CAI, often known as computer-assisted instruction, is a form of eLearning that combines computer use with conventional training. A wide range of exercises are included in this strategy, such as tutorial, simulation, and drill-and-practice exercises (Mensah & Ampadu, 2024). These can be provided as stand-alone exercises or as an addition to conventional teacher-directed learning. Most conventional and online universities now employ a variety of CAI techniques to support students' skill development, according to Tamm (2019). Furthermore, it was highlighted that interactivity is the main benefit of CAI, since it makes learning more dynamic for students (Tamm, 2019).

2.3.3 Synchronous eLearning

Groups of students can engage in simultaneous, real-time activities with synchronous eLearning from any location in the world (Yang & Chen, 2019:141). Online chat and videoconferencing enable this instantaneous communication between students and teachers, preventing any delays. Furthermore, Tamm (2019) claims that because it does away with social isolation and the often-present bad teacher-student connections in eLearning, this kind of community-oriented eLearning is one of the fastest growing eLearning styles.

2.3.4 Asynchronous eLearning

Asynchronous eLearning techniques, as opposed to synchronous eLearning, let students' study on their own at different times and places without having to communicate in real time. This method of self-paced learning gives students greater schedule freedom. Asynchronous eLearning techniques make use of technologies including email, blogs, eBooks, CDs, and DVDs as well as discussion forums.

2.3.5 Blended learning

Blended learning is also identified as hybrid learning; It is an educational strategy that blends online learning activities with conventional in-person classroom instruction (Singh, 2021). The goal of blended learning is to take advantage of both face-to-face and eLearning to create a more flexible and effective learning experience for students (Singh, 2021). This approach acknowledges that different students have different leaning styles and preferences and seeks to provide a more personalised and adaptable educational environment, according to Sumandiyar, et al. (2021). Furthermore, Anderson and May argue that "It is important to note that blended or hybrid learning approaches are not the same as fully online learning and should be further investigated" Walker (2021: 497).

2.4 The role of the Fourth Industrial Revolution in eLearning

The Fourth Industrial Revolution (4IR) is significantly transforming eLearning by integrating advanced technologies such as artificial intelligence (AI), machine learning, and the Internet of Things (IoT) into educational practices (Aoun, 2017). These technologies are revolutionizing the way education is delivered and received, making learning more dynamic, interactive, and tailored to individual needs (Chaka, 2018).

One of the most profound impacts of 4IR on eLearning is the enhancement of personalised learning experiences. AI algorithms can analyse vast amounts of student data to understand individual learning styles, preferences, and paces. This allows for the creation of customised educational content that caters specifically to each student's needs, making learning more effective and engaging. For instance, adaptive learning platforms can adjust the difficulty of tasks in real-time based on a student's performance, ensuring that they are always challenged but not overwhelmed (Abdullah, Mohd-Isa, & Samsudin, 2019).

In addition to personalisation, 4IR technologies are improving accessibility to education. IoT devices and cloud computing enable students to access educational resources from anywhere in the world, at any time (Aoun, 2017). This is particularly beneficial for students in remote or underserved areas who may not have access to traditional educational institutions. Online courses, virtual classrooms, and digital libraries are breaking down geographical barriers and democratizing education, making it more inclusive and equitable (Aoun, 2017).

Furthermore, the integration of 4IR technologies in eLearning is fostering the development of critical skills needed for the future workforce. The emphasis is shifting from rote memorisation to the cultivation of skills such as critical thinking, problem-solving, and digital literacy (Chaka, 2018). These skills are essential in a rapidly changing job market where technological proficiency is increasingly important. By engaging with advanced technologies, students are better prepared to navigate and succeed in the digital economy.

Lastly, 4IR is promoting collaborative learning through the use of virtual and augmented reality tools. These technologies create immersive and interactive learning environments where students can collaborate on projects, conduct experiments, and explore complex concepts in a hands-on manner (Abdurrahman, 2019). This not only enhances understanding and retention but also encourages teamwork and communication skills, which are vital in both academic and professional settings.

2.4.1 Opportunities of the fourth industrial revolution

Similar to previous revolutions, 4IR create opportunities to raise income levels around the world and raise everyone's standard of living. The opportunities highlighted by Plutschinski (2022:3) are: access to the digital world, enhancing the ability of the organisation to meet customer expectations, and opportunity to establish industry rules, which are described as follows:

2.4.1.1 Access to the digital world

New products and services that enhance the efficiency and happiness of our daily lives have been made possible by technological advancements. This means that we can now do anything remotely, including shopping, paying bills, sending money, viewing movies, engaging in gaming, and enjoying music. A supply-side miracle enabled by technological breakthroughs will also lead to long-term gains in efficiency and productivity. The value chains of traditional sectors have been disrupted by modern technology, which has led to the emergence of completely new methods to meet present needs. Innovative, nimble competitors can overthrow long-standing incumbents faster than ever before by raising the quality, speed, or price of delivery, among other sources of.

2.4.1.2 Enhancing the ability of the organisation to meet customer expectations.

Customers are playing a more important role in the economy and businesses in order to provide better customer service. Rising transparency, customer participation, and new consumer behaviour patterns—which depend more and more on access to mobile networks and data—also present businesses with opportunities to alter how they develop, market, and provide goods and services.

2.4.1.3 Opportunity to establish industry rules.

Legislators and regulators in Africa's banking industry are up to never-before-seen obstacles and have shown themselves unable to manage them. Businesses and regulators must work more closely together to reimagine the regulatory structure and ensure that they know what they are regulating. The way businesses and people work, will change significantly because of technological breakthroughs and their related economic effects. It is predicted that between 5% and 100% of various sectors and occupations will be automated. While some occupations may disappear entirely, others will not, according to the general agreement that 45-55% of the workforce will be automated on a blended average across all industries and sectors.

2.4.2 Challenges of the fourth industrial revolution on eLearning

The following are some of the key challenges posed by the Fourth Industrial Revolution (4IR) on eLearning.

2.4.2.1 Education

In terms of education, elderly people have technical difficulties in the era of 4IR. As stated by Assante et al. (2019), problems pertaining to the elderly must be fixed in order to offer an inclusive digital experience, usability, and education. The younger generation is already accustomed to this technology. The core of many services is smart technology, which makes citizen education an important and critical aspect. This can be accomplished by enticing locals to actively participate in their cities and in their interactions with them. They must learn how to take advantage of the tools that the authorities and institutions provide. For educational institutions, the use of mobile technology tools such as tablets and smartphones has proved quite advantageous. Evidence of this is presented in a study that integrated tablet technologies into Information Literacy training to empower extended curriculum students acquire both technological and information literacy skills at a university of technology (Kleinveldt & Zulu, 2016). Education is gradually changing as more institutions use technology in their pedagogical approaches. For example, most institutions were forced to deliver courses remotely using portable devices to combat the COVID-19 epidemic. To

prevent people from being near each other, restrictions such as social distance laws have also been implemented (Heymann & Shindo, 2020).

2.4.2.2 Potential job losses

Concerns about large job losses have returned in the 4IR era due to increased technology use. Key transformational factors shaping global industries, such as enhanced labour productivity, skill requirements, job displacement, and considerable job creation, are expected to significantly affect employment levels (Oke & Fernandes, 2020:31). These concerns are particularly pronounced in developing nations like South Africa, where governments are already facing the challenge of addressing high unemployment rates (Bhorat & Van der Westhuizen, 2021; Naidoo, 2022)

2.4.2.3. Skills Challenges

Skills, innovation systems and knowledge-based communities provide the critical intellectual guidance required to create and put into action smart and digital projects (Scholl & Scholl, 2021; Abdoullaev, 2021). The success of the so-called smart company has also been linked to e-literacy and e-skills (Manda & Backhouse, 2021). Due to industrial practices and technology improvements, the nature of employment has changed, leading to issues including skills mismatches and redundancy (World Economic Forum, 2022). A citizen's ability to actively engage in social and economic activities in a smart society is also influenced by their level of e-readiness, or e-literacy and e-knowledge (Manda et al., 2024). Knowledge-based communities, innovation systems, and skills provide the much-needed intellectual guidance for designing and executing smart and digital projects. The success of the so-called smart company has been linked to e-literacy, or e-skills and e-literacy, which are the fundamental knowledge and skills required to use a computer with confidence, security, and efficiency (Manda & Backhouse, 2017). Due to the changing nature of occupations as a result of technological advancements and industrial practices, skill mismatches and redundancy have been mentioned as difficulties (World Economic Forum, 2016). Additionally, the e-readiness (e-literacy and e-knowledge) of citizens affects their capacity to actively engage in social and economic activities in a smart society (Manda et al. in 2024).

2.4.2.4 Infrastructure *challenges*

One of the challenges facing South Africa in implementing the so-called smart society—which is driven by digital connections, state-of-the-art technology, skills, knowledge, and creativity to foster economic and social growth—is the low broadband penetration rate in the nation (Sibiya, 2023:82). It is also worth noting that ICT infrastructure use has increased over time. Sánchez et al. (2019: 10) state that cybersecurity and privacy issues (virus, worm, and Trojan horse threats; privacy and personal data; lack of awareness regarding interoperability) and operating costs (high IT cost; IT professionals and consultancies; cost of installation and maintenance) plague IT infrastructure. When adopting and implementing 4IR in eLearning, this IT infrastructure needs to be considered.

2.4.2.5 Security and privacy

Security and data privacy concerns are perhaps two of the most urgent challenges in 4IR, where technology is the driving force. New security and protection mechanisms must be developed to support faster and more flexible smart manufacturing systems and collaborative value networks. With more people using data analytics, privacy and security concerns will only get worse (Waidner & Kasper, 2016: 1303). Security is an additional important consideration in the adoption of 4IR in eLearning due to the major problems with privacy and accessibility of stored data (Farahat et al., 2019). For example, Elmaghraby and Losavio (2014) emphasised that a person's daily activities, place of residence, contact details, private emails and chats can all be tracked and stored by a global positioning system (GPS).

The most recent industrial revolution is known as the fourth (or 4IR), and it is characterized by a stronger focus on ICT, technological advancement, innovation, and creativity. It is changing all aspects of our lives. Therefore, to ensure that students and lecturers keep up with technological progress, digital literacy is necessary.

2.5 Integration of eLearning into the higher education system.

The expansion of multimedia and information technologies, as well as the use of the Internet as a hitherto unknown medium of learning, has wreaked havoc on traditional teaching approaches (Parmar, 2020). This is a due to the advancement of information technology (Bates & Singh, 2019). The potential of eLearning to improve individuals' knowledge, capacity, and performance has resulted in more educational possibilities for today's universities, colleges, and other institutions of higher learning, who are racing to build online course capabilities in a rapidly growing cyber education industry (Bates and Singh, 2019). eLearning has become more important in higher education due to the introduction and development of a variety of eLearning technologies, resulting in several changes in higher education processes, particularly in terms of instructional delivery and support systems (Skilton & Hovsepian, 2019).

2.5.1 Advantages of eLearning

One of the advantages of eLearning is that it is flexible in terms of time and location; each student can choose the location and time that is most convenient for them (Dhawan, 2020: 5-22). Through the use of discussion groups, it is possible to offer opportunities for students to form bonds by using eLearning, which gives institutions and students a great deal of choice in terms of how knowledge is provided and absorbed, as well as how they agree to study (Anwar & Graham, 2021: 237-258). Educators are no longer the only source of knowledge and instead act as mentors and advisors, and the environment for eLearning also encourages students or learners to rely on themselves (Joshua et al., 2019). For instance, eLearning enables the observation of far more adaptable learning methods to attend classes with significantly less need for travel.

Through classroom activities that use interactive video technology, students are able to gain a deeper understanding of the material (Martnez-Caro, Cegarra-Navarro, & Cepeda-Carrión, 2019; Gautam & Tiwari, 2019). This enables students to react quickly to the exercises.

2.5.2 Disadvantages of eLearning

Innovation in education is not a one-size-fits-all strategy because it depends on both the educational programs being taught and the types of technology that are now available (Utomo, Sudayanto, and Saddhono 2020:383-390). However, Utomo et al. (2020:383-390) further argue that this increases the number of variables to consider when integrating technology into teaching techniques and developing learning experiences. Nevertheless, both "common knowledge" and technology advancements can enhance learning. In collaborative learning tasks including group work, group presentations, and group evaluations, outside understudies may struggle with support (Graff and Clark, 2019). According to Schott and Marshall (2021) there are other problems in the learning environment, such as technological difficulties, complexity, sequencing of activities, and administering online assessments. Furthermore, students need motivation to complete their task, stay engaged and make progress because it may be tempting to drift or wander in the virtual environment when classmates and lecturers do not surround one in the physical classroom environment (Husaj, 2020).

2.6 Different perspectives of eLearning

Online education is education that takes place over the Internet. It also goes by the name ‘eLearning’, among others. However, “distance learning" (a comprehensive description of all learning that occurs over time and outside of a structured classroom) is much broader than only eLearning (Kim, 2020: 156). Instead of attending classes, eLearning allows you to study wherever you choose, at home or wherever else you choose, using the Internet (Simamora et al., 2020: 206). Classes, instructional materials, support resources, and tests are all offered online as part of the learning process. Additionally, seminars frequently videotaped for later viewing are also available (Langfield et al., 2019: 467).

eLearning is a type of instruction in which students receive their education entirely online (Oducado, 2020: 4739). However, according to Luckyardi and Rahman (2021: 49), eLearning is the most prevalent in higher institutions of learning. This is because it makes it possible for students to pursue a degree or certificate while learning flexibly and at their own speed online, interacting with academic institutions and other students

from other places. With the development of the Internet in the 1990s, it was first used for remote learning. eLearning is a term used to describe a learning environment that uses the Internet and connects students from various backgrounds and viewpoints (Firdaus et al., 2022: 188). Higher education institutions employ a learning management system (LMS) to support eLearning. This learning can be synchronous, where students must be online at the same time and use discussion boards and emails to complete the course, or asynchronous, where students choose to be online at various times, but still use these same tools (Firdaus et al., 2022: 189). Students who live in remote areas can benefit from these methods. Working professionals who lack the time to physically attend a class prefer online education (Mohmmed, et al., 2020: 09). People who want to expand their skill set but lack time or funding use this type of schooling as well. Many colleges provide online courses to students who do not have access to traditional classrooms (Singh et al., 2021: 7605). When constraints of time and location are considered, one benefit of eLearning is that it is seen as being flexible. Students are given the freedom to choose the time and place that best suits them. The adoption of eLearning provides organisations as well as their students or learners the possibility of flexibility in terms of when and where they can supply or receive learning resources. It has made it possible for students to receive personalised attention while also having unique learning regimens that are better suited to their needs.

Although online education can be advantageous for many learners, Internet connectivity is a big challenge that has impeded online learning in South Africa. Despite a huge increase in Internet usage in recent years, it can be problematic to locate a reliable connection with sufficient speed in smaller towns and cities. If lecturers or students do not have access to a reliable Internet connection, learning may not proceed. If this occurs, it will have a negative impact on education. Numerous universities are interested in finding the best ways to distribute course information to students online as the popularity of eLearning increases (Dumford & Miller, 2018: 462). Due to the expansion of online education in higher education, it is more important than ever to understand how students who only have access to an online environment connect with it and benefit from it (Dumford & Miller, 2019: 463; Paulsen & McCormick, 2020: 27). eLearning may have certain engagement benefits, but there are some

compromises that online students must make in order to have an engaging educational experience (Dumford & Miller, 2018: 463; Thomas, 2020: 300).

2.6.1 Student perspectives on academic performance during eLearning

A study was conducted during of the first lockdown in Germany and Argentina due to the coronavirus outbreak to explore online learning experiences during the 2020/2021 academic year, Online surveys were employed in the study, which included German and Argentine university lecturers. The study found that most of the students (88 students in two foreign sections) described their overall online experience as ‘excellent’. However, 60% of the students who participated in this study remarked that their learning outcome could have been better if the learning had taken place in person. Most of the students preferred hybrid, synchronous, and asynchronous teaching formats, respectively, when choosing between them. Additionally, the results show that students are still adjusting to the new norms of home study, but expressed dissatisfaction with some aspects, such as missing face-to-face interaction and the difficulty of completing group projects while dispersed in various locations (Dorfsman & Horenczyk, 2022: 279).

The research was carried out in Jordanian health care institutions. A study by Al-Balas et al. (2020: 2) found that 652 students, in their fourth, fifth and sixth years, took distance education courses at their medical schools during the COVID-19 pandemic. Of these, 82.5% reported eLearning in medicine Prior to COVID-19, Jordanian universities did not view e-learning as a viable teaching modality. The satisfaction rate was 26.8%, higher for students with previous distance learning experience and active lecturers. The study found a high correlation between online courses and student participation, with students more likely to use quantitative reasoning. However, they had lower participation in group discussions, student-faculty interactions, and cooperative learning activities. In addition, students who took more online courses reported less effective instruction and poorer quality interactions, the study recommended the training and development of university teachers in the field of digital literacy.

Bahasoan et al. (2022: 20) assessed the effectiveness of eLearning during the COVID-19 epidemic. They used a survey in which 115 students from the University of West Sulawesi in Indonesia, participated. The COVID-The COVID-19 pandemic's online learning program is both ineffective and beneficial. efficiently carried out due to the necessary requirements for online learning, but inefficient because the expenses were higher than for face-to-face instruction.19 pandemic's online learning program is both ineffective and beneficial. efficiently carried out due to the necessary requirements for online learning, but inefficient because the expenses were higher than for face-to-face instruction. They were able to measure the efficiency and effectiveness of the eLearning programme used during the COVID-19 epidemic. A study conducted by Tuyền (2024) declares that e-Learning offers numerous benefits for teaching and training, and it has been widely implemented across the Southeast Region of Vietnam universities and colleges in Dong Nai at various levels. Embracing the motto "learning everywhere at any time" (Tuyền, 2024), Dong Nai province views this as an excellent chance to advance digital transformation in education. Additionally, it emphasizes that online teaching is not just a temporary measure for epidemic periods but a crucial method for enhancing educational quality.

When it came to compulsory online and distance learning courses during COVID-19, Adnan and Anwar (2020: 27) examined the opinions of Pakistani university students. At Pakistan's National University of Sciences & Technology (NUST), they spoke online with 126 college students. They were able to conclude that when face-to-face training was abruptly replaced by online education, students' learning experiences were significantly altered. The findings indicated that most students have trouble learning on the Internet since they do not have access to dependable or quick Internet services. Because of the study's limited sample size and non-random selection, it was difficult to generalise the findings.

Barrot et al. (2021: 7327) conducted a descriptive, mixed-methods study to examine students' eLearning experiences in higher education in relation to the pandemic. The results showed the challenges students faced when learning online and how the epidemic influenced their eLearning experience. Students also acknowledged that they encountered a variety of obstacles when learning online, each of which was of varying

types and severity. The biggest issue for them was their home learning environment, even though they had the least trouble with technology, knowledge, and skills.

In summary, these studies revealed that students' perspectives on academic performance during eLearning varied, and therefore a need for more studies to be conducted in different disciplines on these aspects, which was the purpose of the current study.

2.6.1.1 Importance of Internet connectivity during eLearning

Internet access is necessary for the smooth operation of online classes. Despite recent improvements in Internet access, some regions of South Africa still do not have enough Internet connectivity or speed (Adnan & Anwar 2020: 48). One of the most frequent provided by students for avoiding crucial criteria like active visual presence, which is necessary for proper vigilance, has emerged as unstable Internet connectivity (Saha et al., 2021: 175). There is a rift between the lecturers and the students when the cameras are off. Students frequently log into class and then get side-tracked by other pursuits (Lemov, 2020: 27). Students are thought to value content less since they are not subject to the rules and limitations of a physical classroom setting. According to Scraggs et al. (2020: 2983), the notebook work may have been hurried. Students' prior experience with them may have influenced their preference for written home examinations versus online retakes of earlier on-campus exams. Students benefit from physical classroom engagement by having a stable setting for social interactions, especially those who are still in the preliminary stages of their development. This helps them develop abilities such as empathy and cooperation. In addition to assisting them in real-life circumstances, it also aids in their general growth (Engelbrecht et al., 2020: 838). According to the study conducted by Adnan and Anwar (2020: 49) from an overall participation of 126 higher education students from Pakistan (undergraduate 64, 50.8% as well as postgraduate 62, 49.2%), the findings showed that in developing nations like Pakistan, where the majority of students lack Internet connection due to technical and financial difficulties, eLearning cannot provide the expected results. The purpose of the literature survey conducted by Kayode, (2023: 96) in 2018 was to understand the challenges and technological changes and how they impact vocational education and training (VET). The findings demonstrated that eLearning benefits both learners and

providers in various ways. Some of these benefits include flexibility in terms of learning environment, timing, pace, and subject matter aids students. In addition. savings in lodging and travel expenses, a growth in participants from different nations (internationalisation), and the facilitation of learning by gaining access to a wealth of learning resources (links, search tools, glossaries, and online libraries) were also reported. Savings on travel expenses, lecture room rentals, and personnel expenses are advantages for providers. Other benefits are the quick, unrestricted, and local production, distribution, and updating of educational information, and increase in the number of international participation (Belaya, 2019: 99)

2.6.1.2 The academic performance of the students when engaging in eLearning.

During the COVID-19 pandemic, Dorfsman and Horenczyk (2021: 24) conducted a study in Israel to examine the impact of Covid-19 on educational practices, pedagogical concepts, and propensities among university and college instructors. It also considered the impact of forcing instructors and students into eLearning environments. Both qualitative and quantitative elements of this study were combined in a mixed method methodology. A two-phase mixed-method approach was used for the explanatory design; the first phase involved gathering and analysing quantitative data, while the second phase involved gathering and analysing qualitative data. However, the report places a strong emphasis on the qualitative elements of the study.

2.6.2 Academics' perspective of student performance during eLearning

Understanding how students learn during eLearning from the academics' perspective is fundamental in developing teaching and learning practices. Bailey and Lee (2020: 32) evaluated the learning experience of students during Covid-19 from an educator's perspective. Forty-three South Korean university professors were interviewed for the survey. They were able to identify the advantages, difficulties, and methods of eLearning. The findings revealed that inexperienced lecturers had difficulty developing online classes, setting up computer hardware, learning to use online teaching tools, monitoring student involvement, and providing corrective feedback. Online meetings and the assistance of students with technological issues are the most frequently mentioned difficulties. However, the study highlighted that the advantages for

educators were increased technological comfort, better knowledge and skills, and more experience that they can list on their curriculum vitae (CV). Furthermore, students benefited from having more time to prepare their responses, and practice writing using online writing resources like Google Translator. To address the challenges found in this study, the development of instructors' abilities in collaborative planning and management, the design of appropriate activities and the selection of the appropriate setting and equipment were advised. A case study conducted in Kuwait revealed that university students are prepared to adopt online education, provided they receive adequate training to fully utilize the educational platforms (Soleimani et al., 2024:136). These findings highlight the need for continued investment in both educator development and student training to ensure that eLearning environments are effective, engaging, and accessible for all participants.

2.6.3 Student-academic relationship during eLearning

It has been found that technical difficulties have impeded student-teacher communication (Dhawan, 2020: 19). After two weeks of lockdown, a study in India mentioned that 75% of students reported that their lives had worsened, and 50% believed that the rapid shift to online education would make it more difficult to achieve learning goals. At 12 weeks of lockdown, these percentages were 57% and 71%, respectively. Lack of social connection, unsuitable living conditions for working from home, such as having insufficient Internet bandwidth, and an overall sense of lost effort and motivation were the main problems with which the students were most concerned. Although the students preferred to be placed in smaller groups with individuals, they knew that rather than being placed in random groups, the students cooperated effectively in virtual groups (Almendingen, et al., 2021: 26). In addition, most of the students thought that recording and broadcasting lectures, regular online meetings, and student feedback methods may improve learning outcomes in upcoming digital courses. Students' prior experiences with them may have influenced their choice for written home exams over online retakes of earlier on-campus exams. It was highlighted that the dropout rate did not change from previous years (Almendingen et al., 2021: 30).

According to Lee (2020: 1264), online instruction has helped students develop as autonomous learners and prepared them for the job. Furthermore, Li (2022: 30) discovered that during the course, students had the opportunity to experiment with new learning platforms and applications, which helped them to enhance their skills and capacities. Vanourek (2020: 23) continues to make the case that even while most private and public institutions have made the shift to online teaching and learning activities made possible by platforms like Zoom, Google Classrooms, Microsoft Teams, and others, many still find it to be arduous. The challenges of eLearning are various; in addition to technological and financial constraints, students have also mentioned that a few other challenges include a lack of engagement with the teacher, a slow response time, and a loss of typical classroom socialisation (Adnan et al., 2020: 49). Although online education was essential during the epidemic, its effects should not be ignored (Chiu et al., 2021: 189). Due to the limited availability of smartphones, laptops, and networks, not every student can take online classes. Regrettably, those less fortunate in our society have suffered the most as a result. Differences in access to high-quality education by class and demographic groups may be made worse by this (Koenig, 2021: 27). According to research results, the difficulty for many students to focus for extended periods of time on a screen is one of the most challenging parts of eLearning (Garbe et al., 2020; Rapanta et al., 2020). Another study conducted by Qazi et al. (2024:11), reported that administrators from both the public and private sectors have noted that power outages during class times have negatively impacted students' online learning experiences, posing a significant obstacle to the adoption of e-learning. The profusion of accessible content online both draws and diverts students (Garbe et al., 2020: 60). Teachers have worked hard to make their online classrooms clear, interesting, and interactive to prevent this and to help students stay engaged in class (Rapanta et al., 2020: 929).

2.7 Chapter summary

This chapter focused on reviewing the literature the influence of eLearning on students, the history of eLearning, the Fourth Industrial Revolution, types of eLearning, guidelines for enhancing the implementation of eLearning, different perspectives of eLearning, and the blended /hybrid teaching and learning approach. Universities are increasingly adopting eLearning to enhance student access and flexibility. However, many institutions pursue this approach without fully understanding how the internet influences student engagement. While eLearning is often seen as a solution to rising costs and the growing demand for more flexible learning options, its impact is not universally experienced in the same way. The shift to eLearning has streamlined essential resources like time and cost, offering benefits, especially for students in certain contexts. Yet, a clear divide exists between developed and developing nations; the global impact of eLearning varies. There are limited studies identified that highlight social conditions, particularly in rural areas, that limit the benefits students can gain from eLearning, hindering its effectiveness in these regions. It is undeniable that eLearning can be highly advantageous when implemented in an environment that provides the necessary resources and support. Therefore, the aim of this study was to find out how eLearning influenced students at a University of Technology in the Western Cape. The following chapter describes the method and approach followed to gather answers to the research questions.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Chapter 2, the literature review, examined studies that were conducted at other universities regarding eLearning and different viewpoints on it, the history of eLearning, a global perspective on the impact of eLearning on students' performance, and blended/hybrid teaching and learning approaches. This chapter covers the details of the research design, specifying how the study was conducted. The study process undertaken incorporates the location of the study, data collection methods, data analysis process, validity and reliability, and ethical considerations.

3.2 The primary objective of the research

The study aimed to identify the influence of eLearning on students from a selected institution of higher learning in the Western Cape, South Africa. The literature study focused on aspects related to the influence of eLearning, the history of eLearning, how it affects student performance at various universities internationally and nationally and learning approaches. The empirical study focused on whether the University uses eLearning or face-to-face instruction, or both. The researcher distributed an online questionnaire to the second- and third-year students who are enrolled for the Business Applications subject in the BIA department. Chapter 4 reports on the findings and chapter 5 provides an interpretation of the findings.

3.3 Research question and research sub-questions.

The researcher created a research question on which to build the empirical study. As mentioned in Chapter 1, the research problem is that eLearning has a high influence on the performance of students in higher education. The implementation of eLearning has been a benefit to some students but had an adverse influence on the performance of those coming from disadvantaged backgrounds. Students from disadvantaged backgrounds had little or no exposure to computers and most of them it was their first time to be exposed to working with computers when they got to university. The time

Covid-19 started, most of the students did not have access to devices that allowed them to access eLearning. Yet few of those who had a chance to get sponsorship to access these devices internet infrastructure was not in place in some areas making it impossible to access eLearning even though data and a device was provide. Therefore, the research questions are:

i. What is the influence of eLearning on students at University of Technology in the Western Cape?
ii. How does eLearning influence students at a University of Technology in the Western Cape?
iii. What are the benefits of eLearning for students from a University of Technology in the Western Cape?
iv. What can be done to improve the performance of students during eLearning at a University of Technology in the Western Cape?

3.4 Research paradigm

Most social scientists around the world are curious about how people view the world and how their research might be useful to those affected by it. The goal of a scientific study is to “discover laws and postulate theories that can explain natural or social phenomena, in other words, to construct scientific knowledge" (Bhattacherjiee 2012:3) . People's prior experiences in several ways shape the kind of thinking, attitudes, and expectations they have for the future. It is understood, however, that not everyone would have the same sense of reality or have the same ideas, because prior experiences are ambiguous and influenced by several factors. However, there may be a viewpoint that is shared by many people and so, approaches are accepted as representative of the universal truth. The view referred to as a paradigm is central to the way research and knowledge are understood in the social sciences (Wagner, Kawulich, & Garner, 2012: 88). There are five well-recognized paradigms, each representing different ways of understanding and interpreting social phenomena. These paradigms are briefly outlined below:

3.4.1 Positivism

The point of view emphasises that only empirical methods can establish facts. In other words, anything that is claimed to be true needs to be backed up by actual data obtained in a laboratory setting. As a result, it discards the belief that there could be many realities and that the researcher could influence the result. Those who accept this paradigm employ the quantitative method, and data can be gathered using surveys, observations, measurements, and experiments (Wagner, Kawulich, & Garner, 2012: 88).

3.4.2 Post-positivism

Post-positivism, in contrast to positivist philosophy, acknowledges that conclusions cannot always be guaranteed, even with meticulous adherence to experimental procedures. But the paradigm also holds that empirical approaches that can be verified are the only ways in which truth can be comprehended (Wagner, Kawulich, and Garner, 2012:88).

3.4.3 Constructivist/interpretative

This paradigm suggests that intelligence is socially produced and, hence, subjective, supporting the idea of different realities. It suggests that understanding it is limited to people who have experienced a certain situation. Constructivists hold that reality depends on the environment and that there is no right or wrong point of view. By using this paradigm, data can be gathered through interviews, notes, photographs, diaries, and records (Wagner, Kawulich, and Garner, 2012:88).

3.4.4 Transformative / emancipatory

This framework is predicated on the idea that truth is historically constrained and not always true. It contends that understanding a society's history, politics, economy, and power structures is the only path to understanding reality. It is focused on considering every social factor that could influence how people view the truth. Data can be gathered using both qualitative and quantitative approaches (Wagner, Kawulich, and Garner, 2012:88).

3.4.5 Post-colonial

This paradigm considers the significance of relationships and how they affect reality. It further acknowledges the need of grasping historical backgrounds and how they impact modern reality, which is nearly identical to the transformative paradigm. It highlights the significance of equality and respect for one another between the researcher and the participants in order to uncover the truth. Data can be gathered through reading about indigenous knowledge, hearing stories, and understanding linguistic systems (Wagner, Kawulich, and Garner, 2012:88).

Considering these paradigms briefly discussed, positivism was followed in this study, as well as the research question and the researcher's conceptualisation of the subject. The positivist analysis paradigm serves as the basis for the mixed methods approach for the study. It aligns with an empirical research method that focuses on measuring variables and evaluating ideas connected to broad causal explanations (Ngulube, 2015) .This was determined to be appropriate given that the study's major purpose is to understand how eLearning affects students at a higher education institution in the Western Cape.

3.5 Research Methodology

The research methodology aims to analyse and interpret findings through various investigative techniques, such as questionnaires, interviews, and observations, along with the interpretation of results (Du Toit, Knipe et al., 2001:419). As noted by Brynard & Hanekom (2006:3), research involves the systematic analysis and interpretation of data to resolve research questions and address the research problem. The goal of the research methodology is to examine and assess the nature and scope of the study’s aims and objectives. In this study, a mixed methodology was employed, combining both qualitative and quantitative approaches to provide a more comprehensive understanding of the research problem. This approach allows for a more nuanced interpretation of findings by leveraging the strengths of both methods.

3.5.1 Research approach.

A research approach is the overall strategy or framework that a researcher employs to carry out a study. It defines the methods, techniques, and processes used for data collection, analysis, and interpretation (Creswell, & Creswell,2023). The choice of research approach is influenced by the research question, objectives, and the nature of the data needed for the study. The researcher employed a mixed methods approach, which will be discussed in the following section.

3.5.1.1 Mixed method approach

A mixed methods approach is a research strategy that combines both qualitative and quantitative methods to provide a comprehensive analysis of a research problem. This approach allows researchers to draw on the strengths of both qualitative and quantitative data collection and analysis, offering a more complete understanding of the research topic. It typically involves collecting both numerical data (such as surveys or experiments) and textual data (such as interviews or case studies) and analysing them in tandem or sequentially. Mixed methods research is particularly useful when a research problem requires both breadth and depth of understanding (Creswell & Creswell, 2023). The researcher selected the mixed methods approach for the study so that numerical data gathered can be analysed statistically, providing breadth, while also collecting qualitative data that offers deeper insights into participants' experiences and perspectives. By integrating both types of data, the researcher can triangulate findings, ensuring a more robust analysis and enhancing the validity of the results. This combination of methods is particularly valuable when addressing complex research questions that require both detailed explanations and broad patterns to be understood fully.

3.5 2 A Case Study

A case study involves a comprehensive investigation of a particular subject, such as an individual, group, event, or organisation, within its real-world context. This approach is commonly employed across various fields, including social sciences, education, and business, to thoroughly explore complex phenomena.

The case study method is described as a systematic collection of sufficient data regarding a specific occurrence, for the simple purpose of helping the researcher to comprehend how the phenomenon occurs (Maree (2007: 75; Berg, 2001:225). Specifically, descriptive case study is a research method used to provide a detailed and comprehensive account of a specific phenomenon, event, or case within its real-life context (Yin, 2003). Flyvbjerg (2006) argues that case studies, through their deep focus on specific instances, can offer insights that are more meaningful than those derived from large-scale surveys or experiments. In this way, case studies can challenge conventional philosophy of generalizability by promoting a significant understanding of phenomena. The researcher chose a descriptive case study to provide a thorough and detailed analysis of the influence of eLearning on students within a business application practical module. This is in line with the statement by Flyvbjerg (2006), emphasising that case studies are fundamental in research because they allow researchers to explore cases in their natural setting, often offering valuable insights that might be missed in more controlled, large-scale studies. Furthermore, the study is not designed to make broad generalizations, as it focuses on a single case and is based on a very limited and specific target audience. The study focused on two groups: third-year students who had experienced in-person classes before transitioning to online learning due to the COVID-19 pandemic, and second-year students who had exclusively engaged in online learning. Studies conducted by Tuyền et al. (2024) and Hakimi et al. (2024) informed the researcher's decision to follow a descriptive case study.

Baxter (2008) outlines several advantages and disadvantages of case study research. The benefits include providing in-depth qualitative insights, offering a holistic understanding of the subject, and being particularly useful for studying rare phenomena. Case studies also provide contextual realism, making findings relevant to real-world situations, and can contribute to theory development. However, limitations include limited generalizability, time-consuming data collection, potential researcher bias, challenges in replication, and limited control over variables, which may impact the validity of the findings.

3.6 Research design

The research design is described as the logic or comprehensive plan of a research project and can be considered as the guide for how the analysis will be conducted (Ngwane, 2017: 37). It shows how the key components of the research study such as classes or sample questions, tests, therapies, other services, etc., work together to answer the research questions. An architectural plan is like a research plan. The study design can be viewed as the application of logic through a set of processes that maximises the validity of the data for a particular research challenge. For a specific research problem, the study design can be seen as the application of logic through a set of steps that maximises data validity. According to Mouton (1996: 175), the research design aids in the "plotting, organising, and conducting" of the study to increase the "reliability of the results." It guides the researcher through every step of the research process, including conceptual suppositions, research design, and data collection. Furthermore, the design of a research is "often understood as a strategy to navigate from here to there, where 'here' may be considered the first set of questions to be answered, and 'there' being some collection of answers (conclusions)" (Yin, 2003:19). Because the study is founded on a positivist perspective that promotes the natural-scientific process and tries to comprehend and investigate themes, an empirical mixed method approach was employed to collect primary data. In line with this, a case study was used as the research design.

3.7 Research population

A research study can be restricted to customers of a certain company, patients with a particular medical condition, or students at a single institution, or it can aim to draw conclusions about all adults in a nation. The target population must be precisely identified considering the objectives and constraints of the project. If the population is particularly large, diversified in terms of its demographics, and geographically dispersed, it could be challenging to get an accurate representation. CPUT BIA students comprise the study's research population. To be considered for the study, participants in the population must meet certain requirements, which are outlined in the eligibility criteria (Polit & Hungler, 1999: 278). Participants in this study were required to be students from CPUT; second and third-year students who were

registered in 2022 for the practical subject, Business Applications, in the Business Information & Administration programme, which was selected as the study's main focus, the location of the data collection, and the requirement that participants be open to the study, which were elements aligned to the eligibility criteria (Polit & Hungler, 1999: 278).

3.8 Data collection

Data are defined as "information gathered during the course of a research," according to Polit and Hungler (1999: 267). Data was collected using closed-ended and open-ended questionnaires. The closed-ended questionnaire is an instrument that is structured using a statement questions' approach to gather empirical data from students (Obokoh, et al., 2016: 14). According to Ferrario (2022: 163) open-ended questions are specific questions asked and the respondent is allowed to answer in their own words and style. In the open-ended questions, there is no second option or recommended response. survey instrument is considered the most appropriate when a large volume of information is to be gathered in a short amount of time from the target respondents (Maduekwe, 2015: 8). The following section describes the data collection instrument used in this study.

3.8.1 Data collection instrument

Data collection instruments, as defined by Seaman (1991:42), are tools used to gather data, such as questionnaires, assessments, structured interview schedules, and checklists. A questionnaire is a reliable instrument that can be used to gather data and learn people's thoughts on a subject. Although it has several advantages and disadvantages compared to other evaluation methods, it is used as a strong quantitative measure, since it can provide structured questions with universal meaning (Olsen, 2012: 9–10). Some benefits of administering a questionnaire are:

- Respondents: Respondents are free to consider their responses thoroughly without interruption or compulsion from a third party, such as an interviewer.
- Cost: Depending on the techniques used, the costs are low because many individuals can be reached at once.

- Uniformity: As each respondent receives the same questions, with closed-ended and open- ended questions, responses are uniform, which helps in understanding large numbers of respondents.
- Lack of human touch: If there is any confusion regarding any of the questions, no one is available to clarify them.
- Anonymity: It is claimed that anonymity escalates response rates and can increase the possibility that responses revealed are honestly held opinions (Brace, 2008: 29-33; Olsen, 2012: 11).

The questionnaire was selected as the data collection instrument for this study because it is an effective method for collecting a large volume of data from a wide range of participants within a short timeframe (Maduekwe, 2015). Additionally, by incorporating both closed-ended and open-ended questions, the questionnaire allows for the gathering of both quantitative and qualitative data, offering a well-rounded understanding of the research topic (Obokoh et al., 2016). Closed-ended questions provide structured, easily analysable data, while open-ended questions allow for deeper exploration of participants' viewpoints, helping the researcher to capture valuable, contextual insights (Ferrario, 2022).

The questionnaire was designed using Google forms and consisted of both closed-ended (quantitative) and open-ended questions (qualitative). The researcher did a comprehensive pilot survey, an experiment that serves as a practice run for a larger study and allows the researcher to test a smaller number of participants. The questionnaire was piloted with two BIA research committee members for review, two Advanced Diploma Students, and the researcher's manager. The researcher asked them to complete and provide comments by the 19th of October 2022. According to Teijlingen and Hundley (2001: 1-4), the purpose of the piloting phase is to investigate the feasibility of a method that will be applied in a larger study.
The researcher made the necessary modifications based on reviewer comments received. Before distributing the questionnaires to the respondents, the researcher approached the 2nd and 3rd year lecturers of the Business Applications module in the Business Information & Administration department to assist with publishing the link to the survey on their Blackboard courses. The first set of questionnaires was sent on 20

October 2022. Subsequently, a follow-up email reminder was sent 14 days later. The reminder specified the deadline to respondents that the questionnaire will close at 23:59 on 30 November 2022. All respondents were informed that participation was voluntary. They could withdraw at any given stage during the completion of the survey. The respondents included second- and third-year students participating in the Business Applications course in the Business and Information Administration Program within the Business and Management Sciences faculty were given a survey questionnaire using a mixed methodology. Seventy-three students answered the questionnaire. However, 16 students did not answer some questions, and this is reported on in the findings chapter. The questionnaire included 50 questions and was divided into four sections: A to D. Section A gathered biographical information, Section B explored perceptions and experiences of face-to-face versus eLearning, Section C summarized responses to statement-based questions, and Section D examined the skills and support available to students. A brief description is provided in the next part, on how the data collected from the questionnaire was analysed to identify trends, patterns, and insights related to the influence of eLearning on students in the business application practical module.

3.9 Analysis and interpretation of data

Data analysis is described as the technique of analysing and interpreting the data (Tolley et al., 2016: 65). The statistician from the Research department of the Cape Peninsula University of Technology, analysed responses to the closed-ended questions, using the NCSS 2021 Statistical Software (2021). The p-values were noted and the Chi-square test for independence was employed. The responses were categorized and examined to provide a comprehensive understanding of the students' experiences with both in-person and online learning. Cross tabulations were performed to determine any significant relationships. Responses to the open-ended questions were analysed using content analysis. This technique is often concerned with personal or social meaning (Schreier, 2012) and was useful in analysing students’ experience and perception of eLearning. The responses were coded into relevant themes for interpretation.

Any missing data or incomplete responses were considered, ensuring a thorough interpretation of the overall findings.

3.10 Reliability and validity of the research

A research study must consider the two separate but linked phenomena of validity and reliability. Making sure that reliability and validity are attained in the study population is one technique to guarantee that results are reliable, and that researcher bias is minimised. According to popular assumption, quantitative research is the main application for checking reliability and validity. Stenbacka (2001: 252) asserts that validity and reliability are quantitative concepts due to their focus on measurements.

Reliability

While the degree to which research provides consistent results is referred to as reliability, validity is concerned with the integrity of the conclusions gleaned from it (Bryman & Bell, 2011:41). If a study's results are accurate, it implies that if the research were repeated using the same process, the same results would be obtained. A piloting phase was conducted with two Advance diploma students, two BIA committee members, and the researcher's manager who were not included in the actual research but shared traits with the study's population to evaluate the questions' clarification and accuracy.

The reliability of this study was assured by distributing the google form link to the 2nd and 3rd year Business Applications students via Blackboard in the BIA department. Additionally, it was secured by distributing surveys under the same conditions and formulating the questions consistently from one person to the next. Questions intended to get the same opinion were frequently asked to verify that responses were trustworthy.

3.11 Limitations of the study

This study is restricted to the geographic boundaries of the City of Cape Town students. The information was only inquired from CPUT second- and third-year students who were studying the Business Applications module in 2022. Any student

who was not from the above university and not studying the Business Applications module at the moment of data collection was not considered. The study is limited to CPUT Business Information & Administration Department. Although the researcher initially targeted two higher educational institutes, the other institution declined the invitation to participate in this research.

3.12 Ethical considerations of the study.

It is essential to always take ethics into account. According to Okpo (2020:16–31), incorporating ethics (ethical considerations) can function as a deterrent against the potential disregard for the morals and values of the responders. Therefore, the ability to withdraw from the study at any time. or refusing to answer any questions they find uncomfortable, was made clear to participants. Participants were assured confidentiality and anonymity in the publication report, including some other journals that might refer to it. The researcher's goal was to treat the study subjects and the data they provide with respect, consideration, and courtesy. There was no unneeded danger posed to the participants' bodily or mental health. They did not experience any unusually painful forms of tension, loss of self-esteem, or embarrassment. Participants were informed in advance that if there is any possibility of psychological distress of any kind, the required counselling or debriefing will take place immediately.

The ethical guidelines established by the Cape Peninsula University of Technology ethics committee, where the researcher is a student, served as the basis for this work. to the researcher obtained ethical clearance from the Cape Peninsula University of Technology ethics committee prior to the data collection phase. The voluntary consent of all participants, according to Corbie Smith et al. (1999), is crucial in social study. As a result, each participant received a written explanation of the research with an emphasis on voluntary participation. This involved ensuring anonymity and the right of participants to leave the research study at any time. Everyone who participated were treated with consideration, understanding and respect. In addition, reflection-based approaches were used in the phrasing of questions to reduce inequality and presumptions.

3.13 Chapter Summary

This chapter explains the methodology used for the study. A research study's research technique part acts as a roadmap to take the reader through the investigation process. Additionally, it aids the researcher in comprehending the critical elements that must be considered for the study to be recognized as a valid piece of work. The research topic, goals, and meaning all have an impact on the research approach. The researcher discussed the paradigm views of the analysis in this chapter. A paradigm view is a theoretical framework that guides how a researcher frames a study and the procedures that must be used based on theoretical knowledge.

The chosen research methodology was then briefly explained. Readers were led through each stage of the research by the research design section, which also highlighted the rationale behind the design decision. It was also crucial to clarify how the study presented and analysed data obtained through questionnaire surveys while keeping in mind the requirement to guarantee the validity and reliability of the data. The principles of validity and reliability are also covered in this chapter, along with how they relate to the acceptability of the study. It is important to emphasise that with quantitative approaches; precautions must be made to guard against investigator preference and guarantee that the research is founded on the actual evidence provided by the contributors. The section also covered the limitations of the study. The chapter concludes by discussing ethical issues and the significance of making sure that they are considered. The next chapter, Chapter 4, deals with reporting of findings.

CHAPTER 4: REPORTING THE FINDINGS

4.1 Introduction

In this chapter, the information collected from fieldwork with respondents is covered. The data was downloaded from Google forms, cleaned, updated, and coded using an Excel spreadsheet before analysing and represented graphically and numerically. To highlight the findings and demonstrate how the study's variables are related to one another, graphic charts and tables were used. The correlations between the variables are expressed in the pictures according to questions posed in the questionnaire. Once it was made clear to the respondents that their participation was voluntary, the target population was used to collect the data. The participant retained the ability to end participation at any time, and ethical standards were followed. Furthermore, the participants' rights to respect for human dignity, anonymity or confidentiality protection, and the right to information were all upheld.

The findings reported on in this chapter, was an attempt to answer the research problem and research questions. As described earlier, previous studies have reported on the influence of eLearning on the performance of students in higher education. The literature findings revealed that the implementation of eLearning has been a benefit for some students but has had an adverse influence on the performance of those from disadvantaged backgrounds. Students from disadvantaged backgrounds had no exposure to computers; it was their first exposure to working with computers when they arrived at university. This meant that eLearning is foreign to them, as it makes use of devices that they are not exposed to at a younger age.

The report on the findings attempted to answer the following research questions:

i. What is the influence of eLearning on students from a University of Technology, in the Western Cape?
ii. How does influence students from a University Technology in the Western Cape?
iii. What are the benefits of eLearning for students from a University of Technology in the Western Cape?

iv. What can be done to improve the performance of students during eLearning from University of Technology in the Western Cape?

The findings are reported on in four sections. Section A, reports on biography, Section B, reports on the perception, and experience of face to face versus eLearning. Section C summarises the responses to statement questions and Section D reports on skills and support accessible to students participating.

4.2 Summary of the findings

4.2.1 Section A: Biography

The findings are organised by first briefly describing the inquiry, followed by a report on responses, and then illustrated using diagrams and/or tables. The personal information is here to ensure the validity and reliability of the data collected. Researchers use this information to verify that participants are who they claim to be and that they meet specific eligibility criteria.

Level of study

Students were asked to indicate their level of study. Figure 1 displays that the majority of the respondents are second (43%) years followed by 3rd (42%) years students respectively. It is thought-provoking that 15% of students indicated “other” and chose not to specify their year of study.

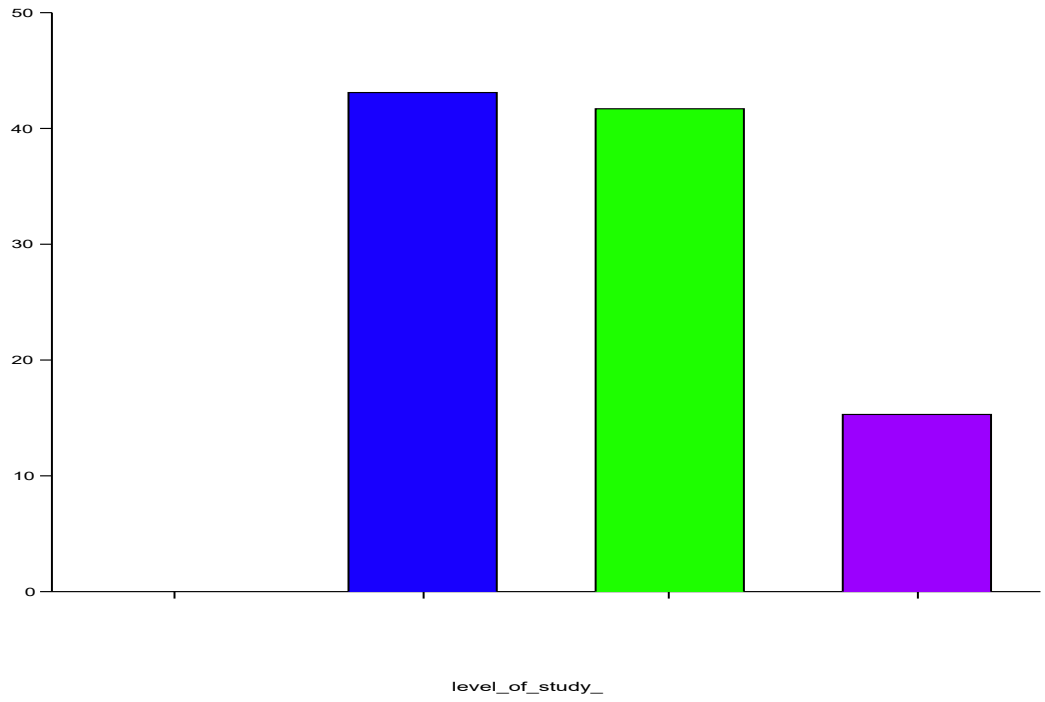

Figure 1:Level of study.

Age range

Students were asked to indicate their age. Answers indicated in figure 2 show the majority of respondents to be 47(64%) came from 21-30 age followed by 16 (22%) respondents are within the 18- 21 age category. Considering that the majority the 21-30 age bracket, falls within the average age groups of full-time second- and third-year students in higher education. There are some that indicated being older, that they are part-time, working students which is the 11 (14%).

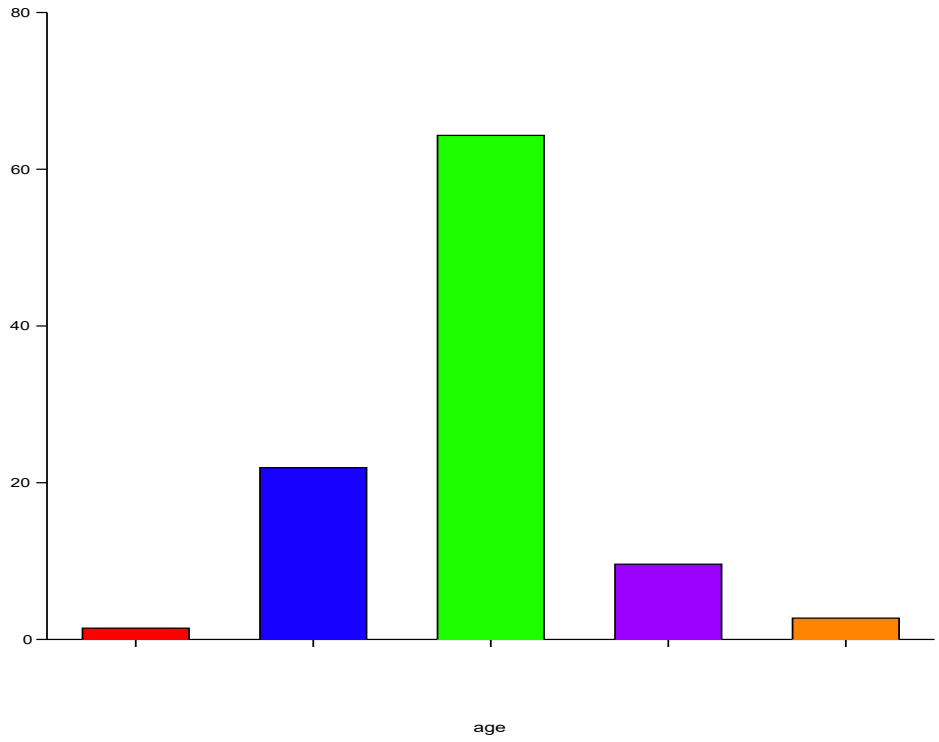

Figure 2: Age range of the respondents.

Ethnicity

Students were asked to indicate their race and Figure 3 shows that 56 (78%) respondents are Blacks and are the most dominant ethnicity in the BIA department, followed by 13 (18%) Coloured, 2(3%) Indian, and 1 other. The response rate aligned with the race representation of students in the BIA department.

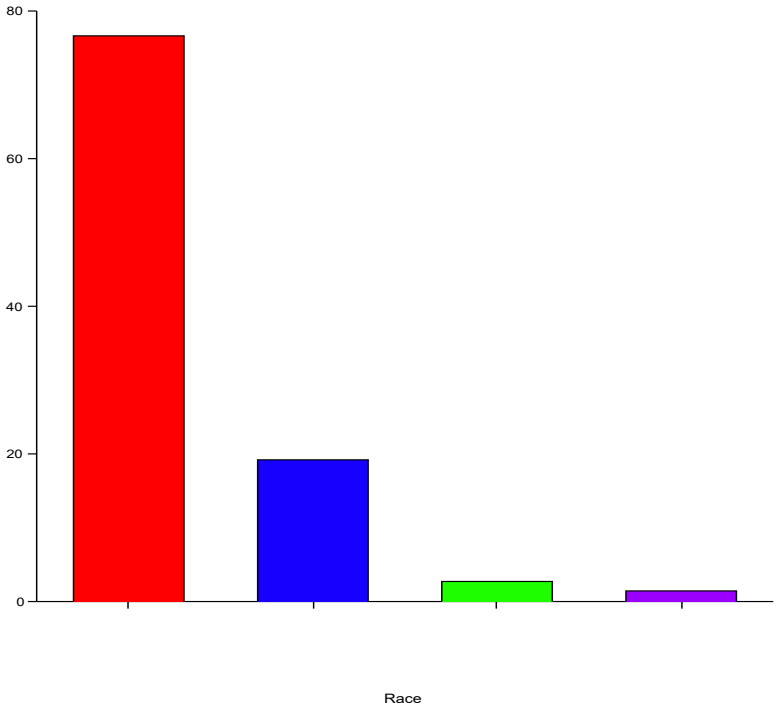

Figure 3:Ethnicity of the respondents.

Gender.

The students were asked to indicate their gender to demonstrate that the study was not gender-specific, this question was asked to determine the gender of each survey respondent, Figure 4 reveals that the majority of the respondents were male with 51% and followed by 49% of respondents who are female, indicating a fairly equal representation.

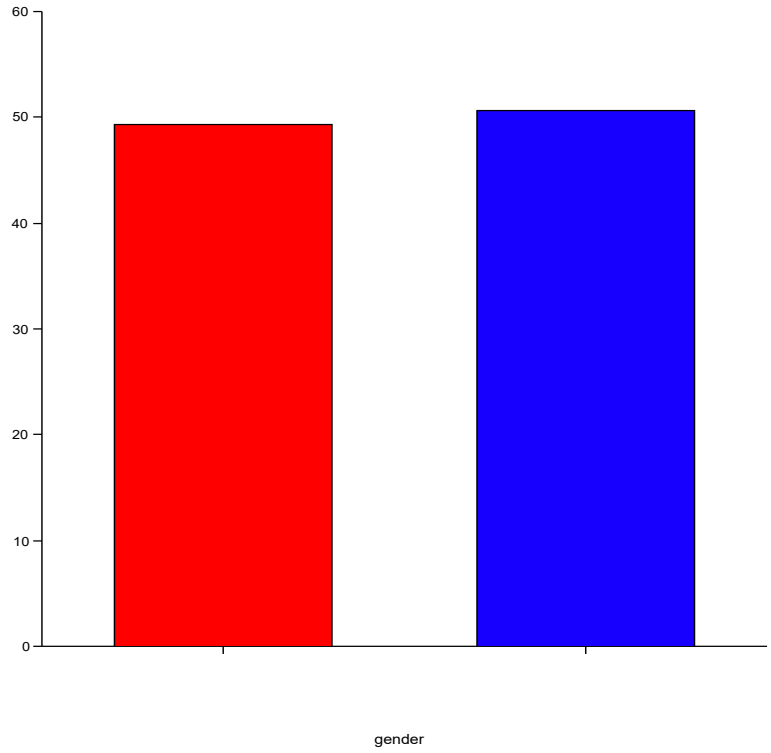

Figure 4: Gender of respondents.

Residence

The students were asked to indicate the place where they are staying. Figure 5 shows that 36 (49%) of respondents are staying at CPUT residents, followed by 21 (29%) respondents who live at home. The least responses came from students who are residing in private accommodation and those living with relatives with the response of 10 (14%), 3 and (4%) respectively. 4% of respondents chose not to respond to the question.

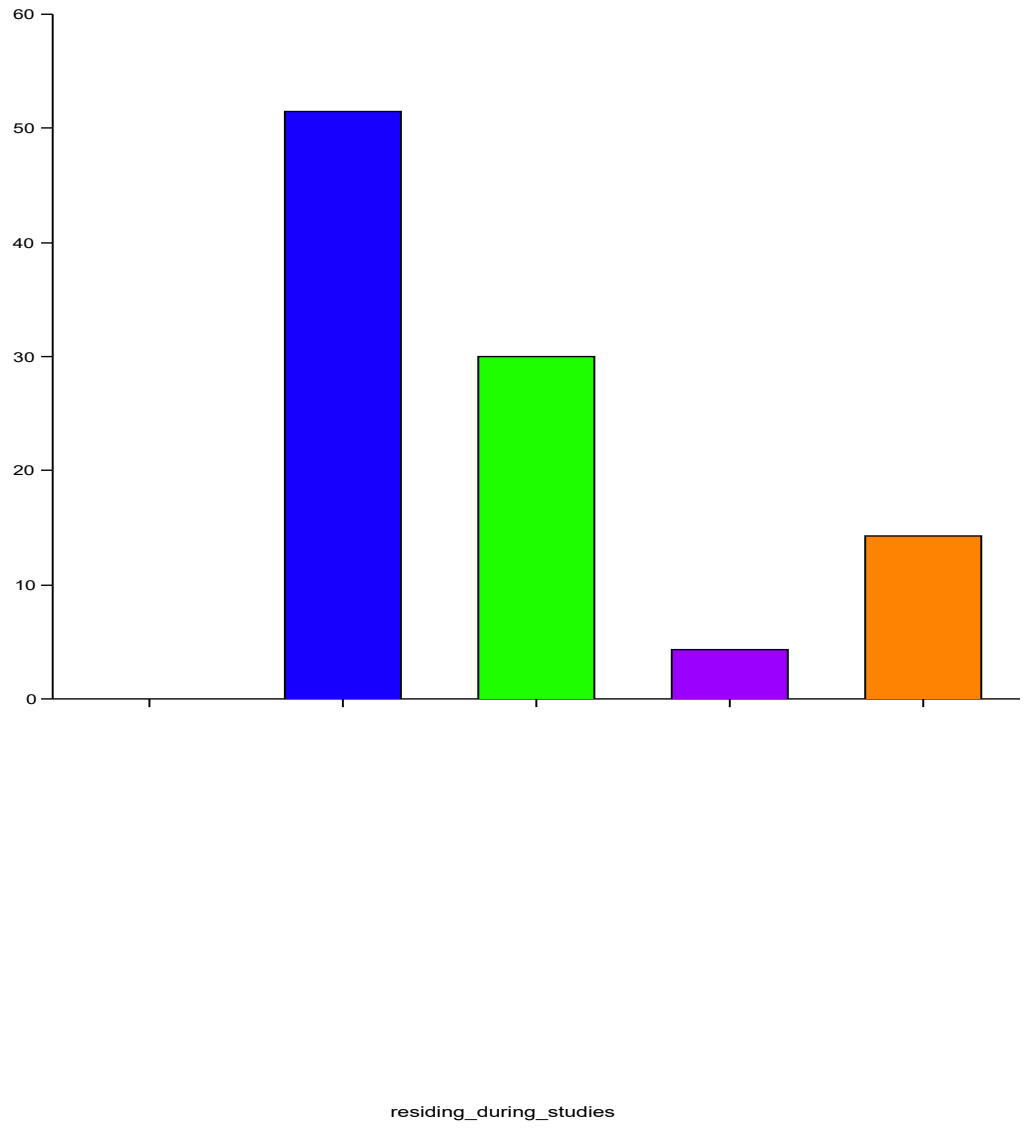

Figure 5:Residence of respondents.

The duration of study at CPUT.

Students were asked to indicate how many years they have studied at CPUT. This question was centred on the duration of study for the target population. The responses in Figure 6 show that 67(92%) of the respondents have been studying at CPUT for 1 – 4 Years. This is followed by 4 (5%) of respondents between 4 – 6 years and 2 (3%) indicated they were studying 6 years or longer.

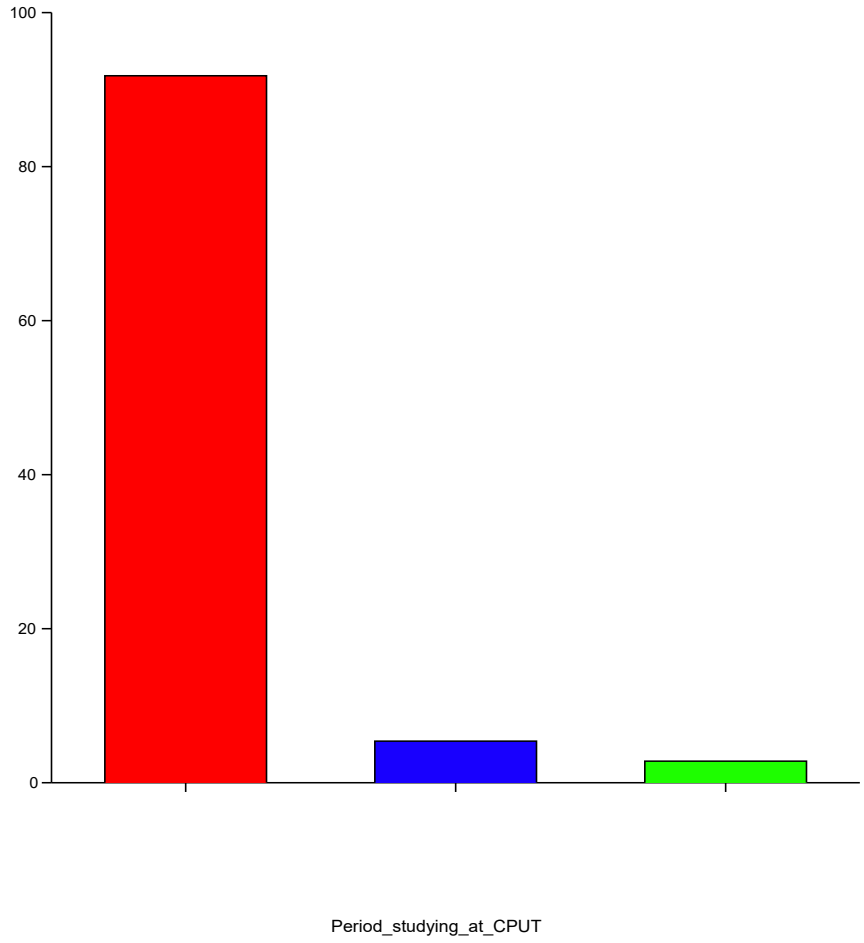

Figure 6: The duration of study at CPUT.

Duration of computer usage.

The students were asked to indicate how many years they have used a computer. Figure 7 show that 36 (55%) of the respondents have been using a computer between 0- 5 years. Quite a number, 12 (18%) of the respondents, have been using a computer for11 – 15 years.

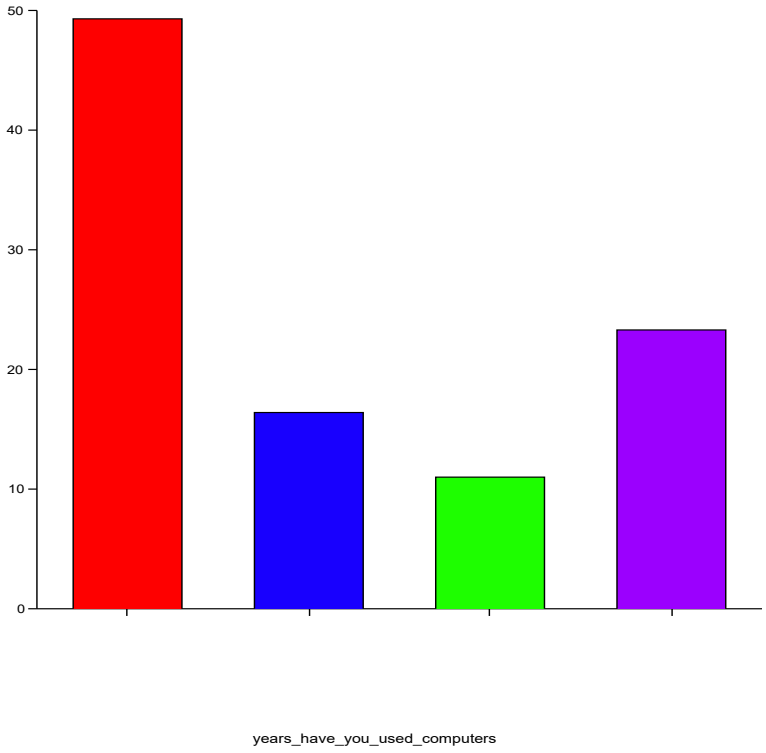

Figure 7: Duration of computer competence of the respondents.

4.2.2 Section B: Perception and experience of face-to-face versus eLearning.

This section focuses on the perception and experience of face-to-face and eLearning. There are two open-ended questions in this part. The qualitative information collected through these questions has been classified into themes and sub-themes.

Positive online learning experiences and perceptions. The online survey's open-ended question asked respondents to describe their online learning experience and perceptions during the Covid 19 pandemic. As a first stage, the responses to this question were divided into two categories: Positive and challenging experiences. In the second step, the positive and difficult replies were classified as main and sub-themes. Table 1 shows the two major characteristics identified: flexibility and university support.

Table 1:Positive online learning experience and perception.

Main themes	**Sub-themes**
Flexibility	I could work at my own speed and time. Learned new skills. Accommodative and productivity. Knowledge of working online. Support from family & friends
University support	Data provided. Support from tutors & lecturers. Resources available for online learning.

Flexibility

Students saw the university's adaptability to the changing circumstances brought about by the pandemic. The institution made sure that no student was left behind and provided plenty of chances for them to participate in their education, including "catch-

up" programs that helped students who were struggling. This was acknowledged in the following response.
“At-least eLearning has given us flexible time to study, especially us part-time students. We can even listen to classes while in a bus or driving back home.”

“I would say it has been good and fun to be online, the world is improving with technology so should we. I enjoy anything computer-based and applications. Plus, flexibility in terms of access to online materials”.

“It easy to get in touch with other student and lectures especially WhatsApp.”
“With online classes we can now work and study at the same time.”

“This is a blessing in disguise for part-time students, now we can never be late for classes since we can access classes at anytime and anywhere in world.”
“This made me to have more time even with family.”

University support

The institution provided data and equipment to students who requested for them, which was one of the good reactions pertaining to institutional measures during the pandemic that the students appreciated:
“During a global pandemic, it was very beneficial that the university provided resources so that the majority of students could continue their education.”

“I am quite proud of my lecturers for being available to us virtually during the pandemic. I hope things stay the same”.

According to one response, regular communication from the institution, faculties, departments, and instructors helped students feel connected to the university. *“Departmental and work updates were constantly sent out to students, which kept us informed and up to date”.*

Challenging online learning experiences

Table 2 below lists the answers to the open-ended question that helped identify the themes and sub-themes that were considered difficult. The difficulties respondents had with online learning were associated with their bad experiences. The main theme that that emerged infrastructure and resources.

Table 2:Challenging online learning experiences

Main theme	Sub-themes
Resources and infrastructure	The cost of mobile data and appropriate gadgets loadshedding times and inconsistent connectivity Lack of comfortable "home" environment

Resources and infrastructure.

A large portion of the problems with infrastructure and resources are due to financial constraints when it comes to buying gadgets, data, and electricity. Respondents had connectivity issues, and planned load-shedding caused by the erratic electrical supply disrupted online instruction and learning. This was acknowledged in the following response.

“It was good, but connectivity issues were bit problematic”.

“The cost of data made me miss a lot of classes during the pandemic”.

“The only challenge with eLearning activities is when you have network problems. Sometimes the area that you live in if it is a noisy place. It will be hard for you to participate. Also, when you do not have a smartphone, it is hard to participate in online activities.”

“Negatively. Classes are postponed or cut short due to load shedding. Studying during the night is also made difficult as all lights are off and I must rely on my phone's torch light. Network is bad and I am unable to join online sessions and tests are pushed back to accommodate everyone's load shedding’s schedule.”

Preference of delivery mode

Students were asked to indicate which type of teaching and learning delivery they prefer and to explain reasons. Table 3 reveals that a combination of face to face and eLearning (49%) is the most dominant type of delivery mode that students preferred.

Table 3:Preference of eLearning, face to face or a combination

Learning Mode	**Percentage**
Online Learning	22%
Face to Face	28%
Combination	49%

The themes that stood out from students' explanations on their preferences in engaging with teaching and learning activities were Time management, cost data , loadshedding, motivation and performance.

The following responses emphasised students' preferences:

"This has taught me to manage my time properly because managing several subjects with a fluid timetable is a lot of work".

"The cost of data made me miss a lot of classes during the pandemic".

"I prefer a combination because face to face helps use a student to conduct ourselves to others and online helps in because we can go and watch recordings".

"I would prefer online learning over face to face, because with online learning you get to relay onto yourself more than anything. The other benefit is that the world is changing to that space so being able to learn and sort things out online will make things easier when one reach the working environment".

“Online because we live in a digital era, and it is very helpful to us to familiarise ourselves with technology as we Weill be working in corporate fields, and it would be helpful and would be considered a skill”.

“Combination, because for some modules I believe a lot of work would be done online and others need the element of engaging through face-to-face discussion especially in doing things in group settings or numerical and application modules which help grasp things quicker in a face-to-face setting”.

4.2.3 Section C: Statement Questions

This phase involves using the Likert scale to assess respondents' views and attitudes regarding particular statements that are taken from the research question, problem statement, and objectives. The Likert scale was used to score statements from 1 to 5, where 1 indicated very strong agreement, 2 agreed, 3 was neutral, 4 disagreed, and 5 strongly disagreed. The claims were ranked by the respondents according to their perceived level of understanding. The same approach is used here as it was in the biography section, where the statement is presented as it would appear in the questionnaire and is backed up by an answer that is given in an illustrative manner.
The following claims are reiterated:

eLearning is a new teaching and learning model at CPUT.

The first Likert statement tries to find out if respondents are satisfied with online learning being the new teaching and learning model at CPUT. Figure 8 shows that (42%) and (37%) of respondents agree that eLearning is a new teaching model, however, (16%) respondents are undecided and 4% disagreed with the statement, from which it is possible to draw a conclusion. eLearning is the new teaching and learning model in business applications students in BIA department at CPUT.

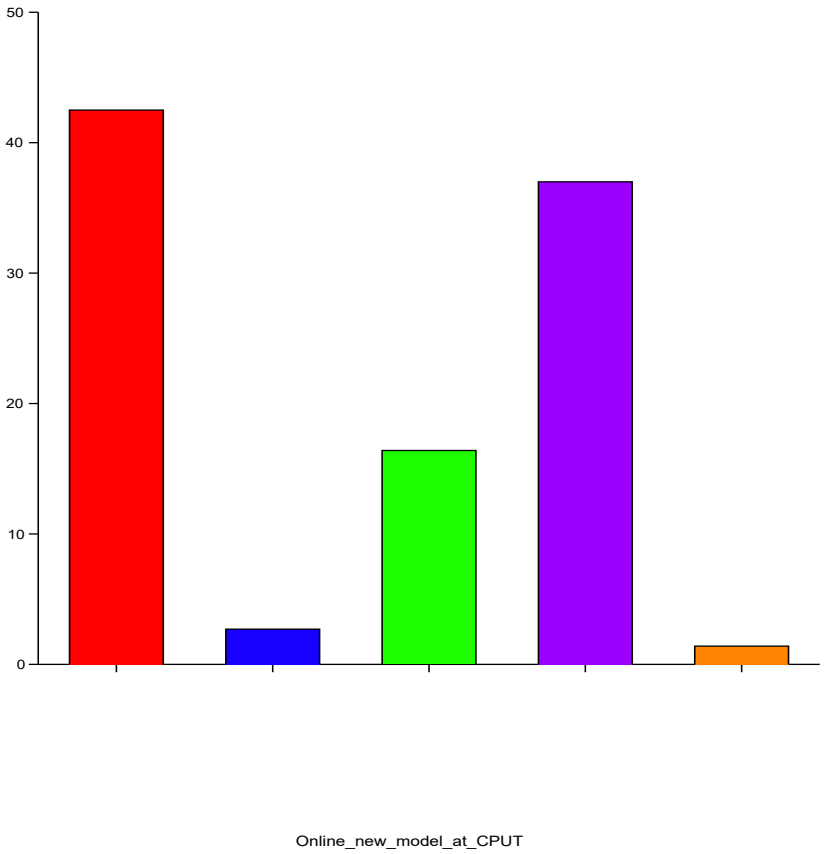

Figure 8:Perception of teaching model

eLearning comprehension.

Figure 9 shows that 33 (45%) of respondents disagree or strongly disagree with the statement: “It is difficult to grasp the content of the work taught via eLearning”. However quite a large number of respondents, 28 (30%) o are undecided. They not sure whether it is difficult or not to grasp the content of the work taught online.

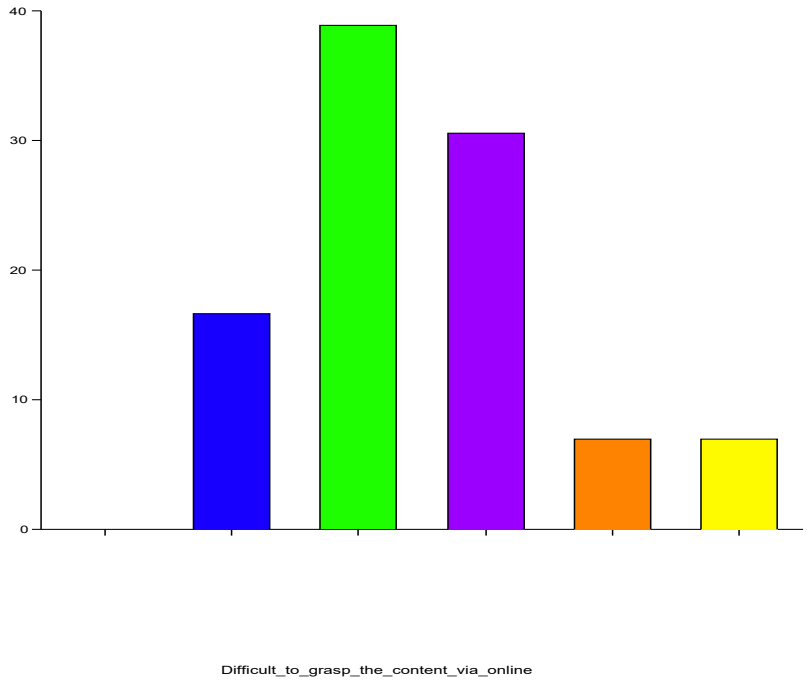

Figure 9: eLearning comprehension

Access to lecture recordings and comprehend of work.

The statement was made in order to learn the respondents' opinions about the recordings that are made and posted on Blackboard by the lecturers. Figure 10 shows that 60 (45%) of the respondents strongly disagree or disagree with the statement that “having access to recordings of lectures made it easy for me to understand the work done in class”. However, 9 (13%) of the respondents remain undecided and 1 chose not to answer.

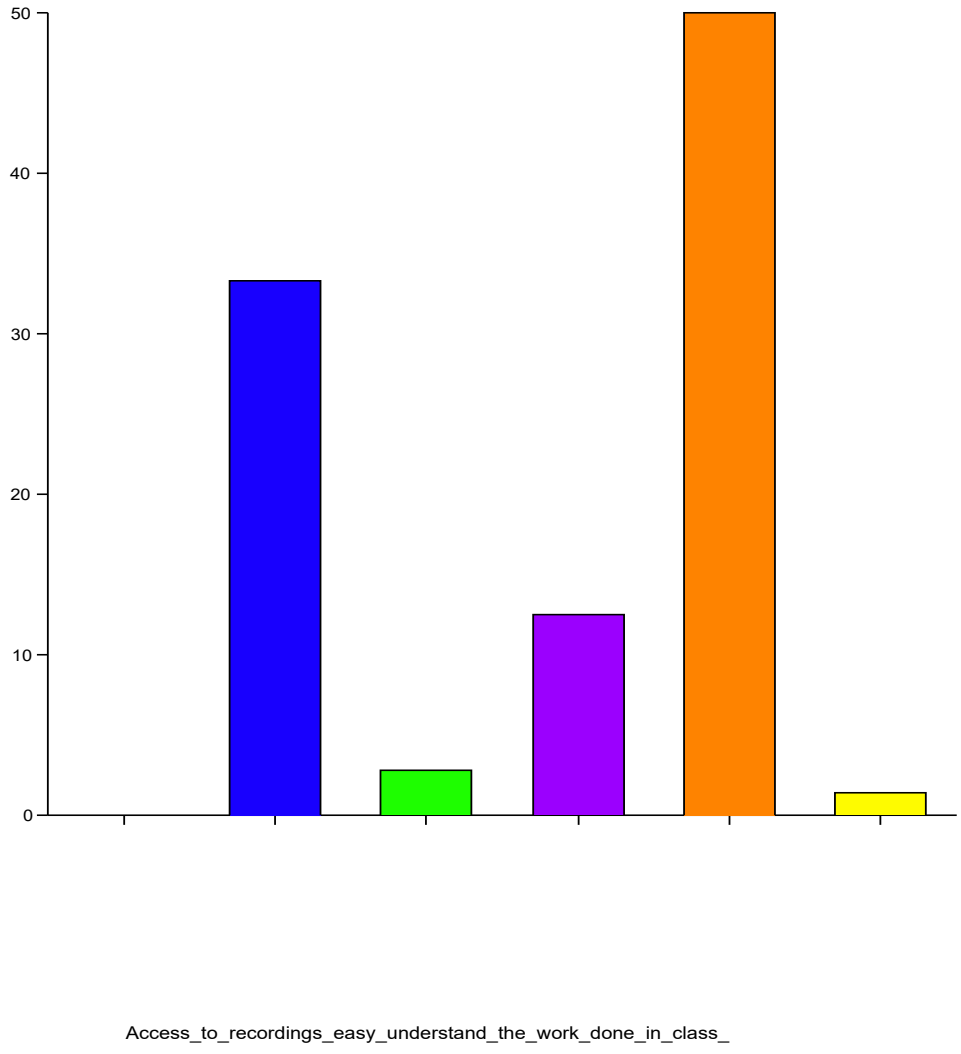

Figure 10:Access to lecture recordings and comprehend of work.

eLearning is beneficial for all students.

Figure 11 shows that 49% of respondents agree with the statement: “eLearning is beneficial for all students”. However, 29% of respondents remain undecided, and 21% of respondents disagreed with the statement.

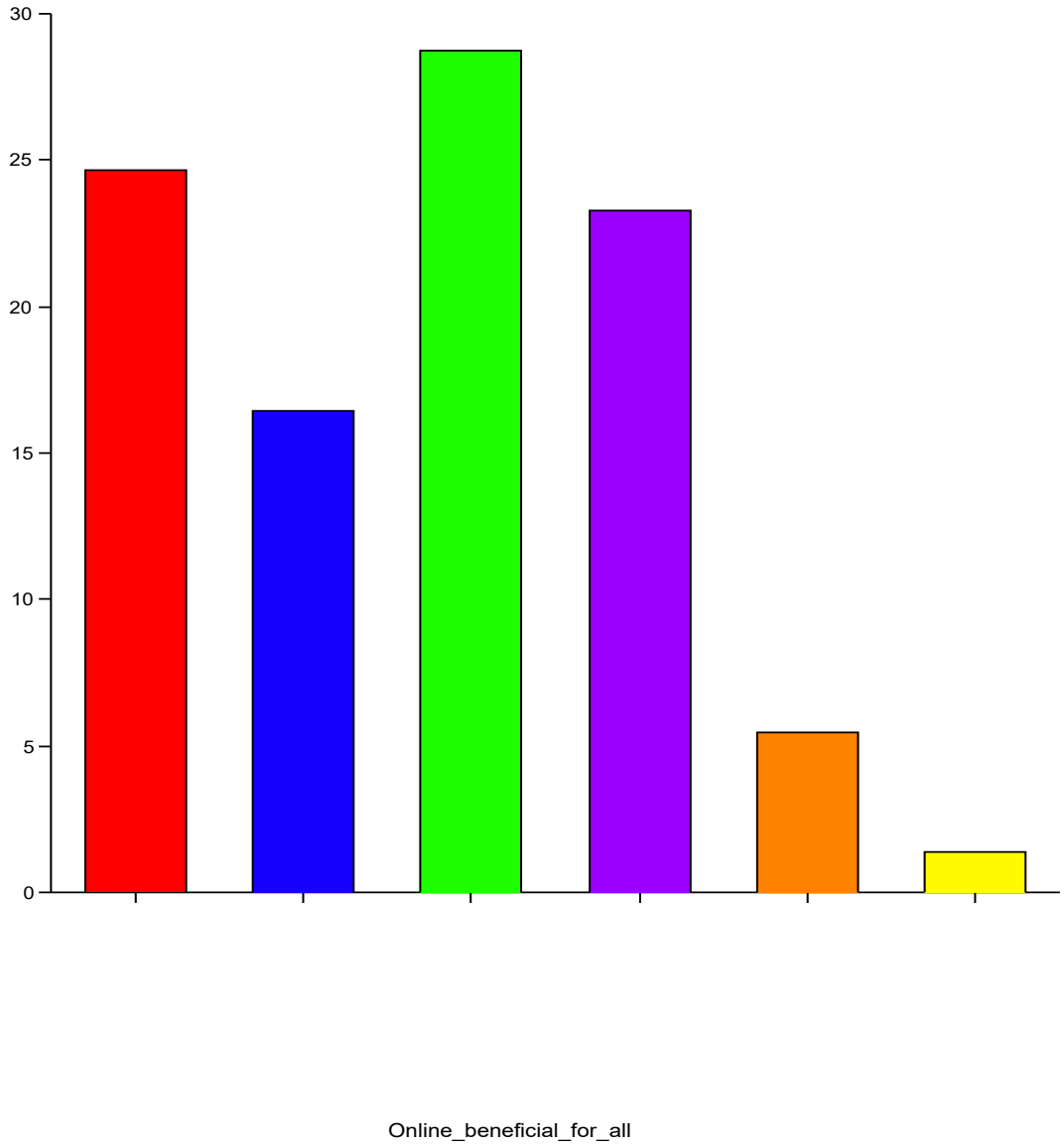

Figure 11: eLearning is beneficial for all students

eLearning is a method that only benefits privileged students.

Figure 12 shows that 38 (52%) affirmed that eLearning started as an exclusive method that benefited privileged students. 16 (22%) respondents affirmed that they did not agree with the statement, while 19 (26%) remain Undecided.

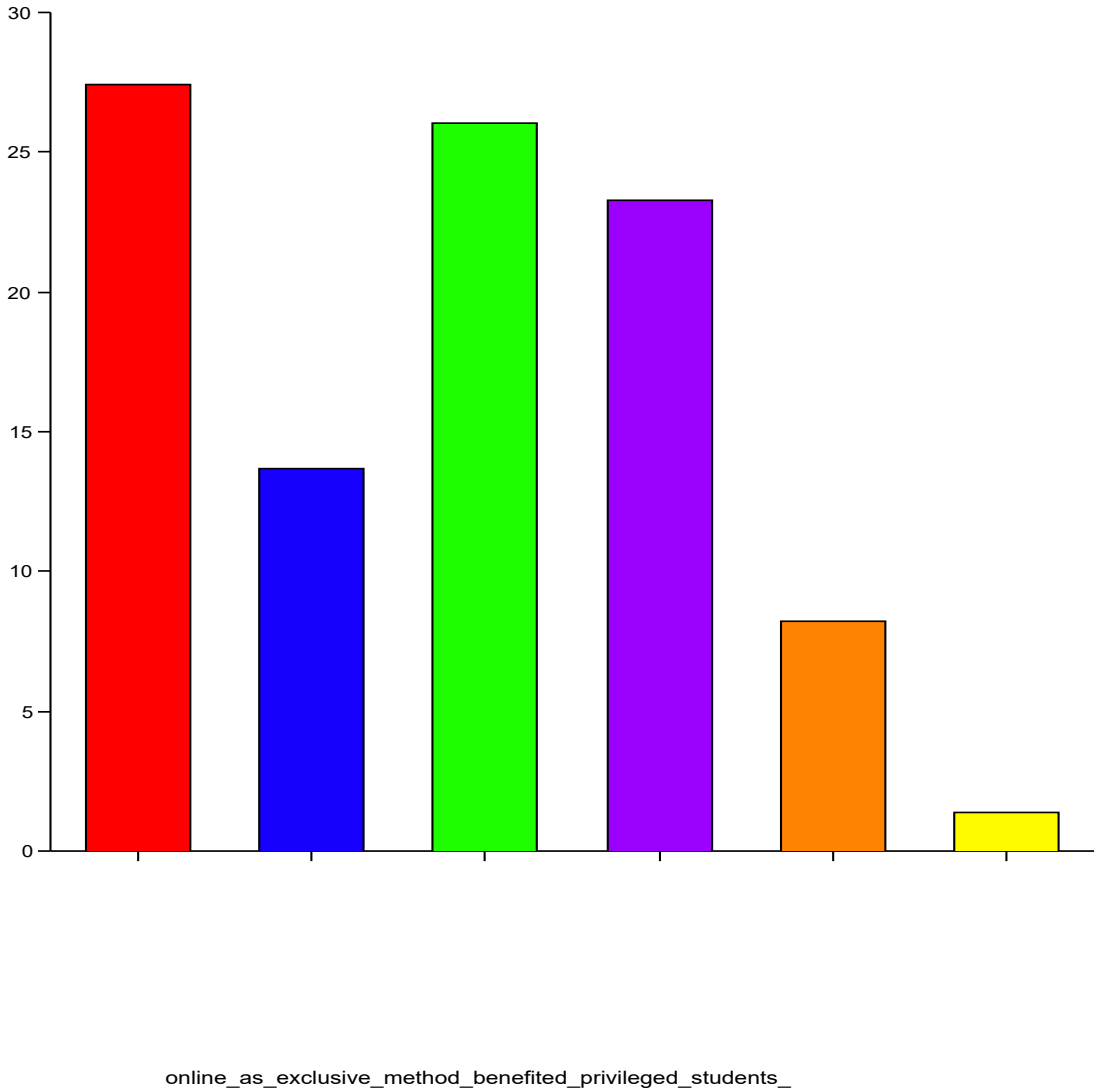

Figure 12: eLearning as an exclusive method for privileged students

eLearning encouraged better interactions with fellow classmates.

The goal of this statement was to learn how respondents felt about the assertion that students were able to interact with their classmates. According to the results Figure 13 indicate that the majority, 34 respondents (47%), disagree with the statement, while 25 respondents (35%) agree, and 13 respondents (18%) are undecided or neutral.

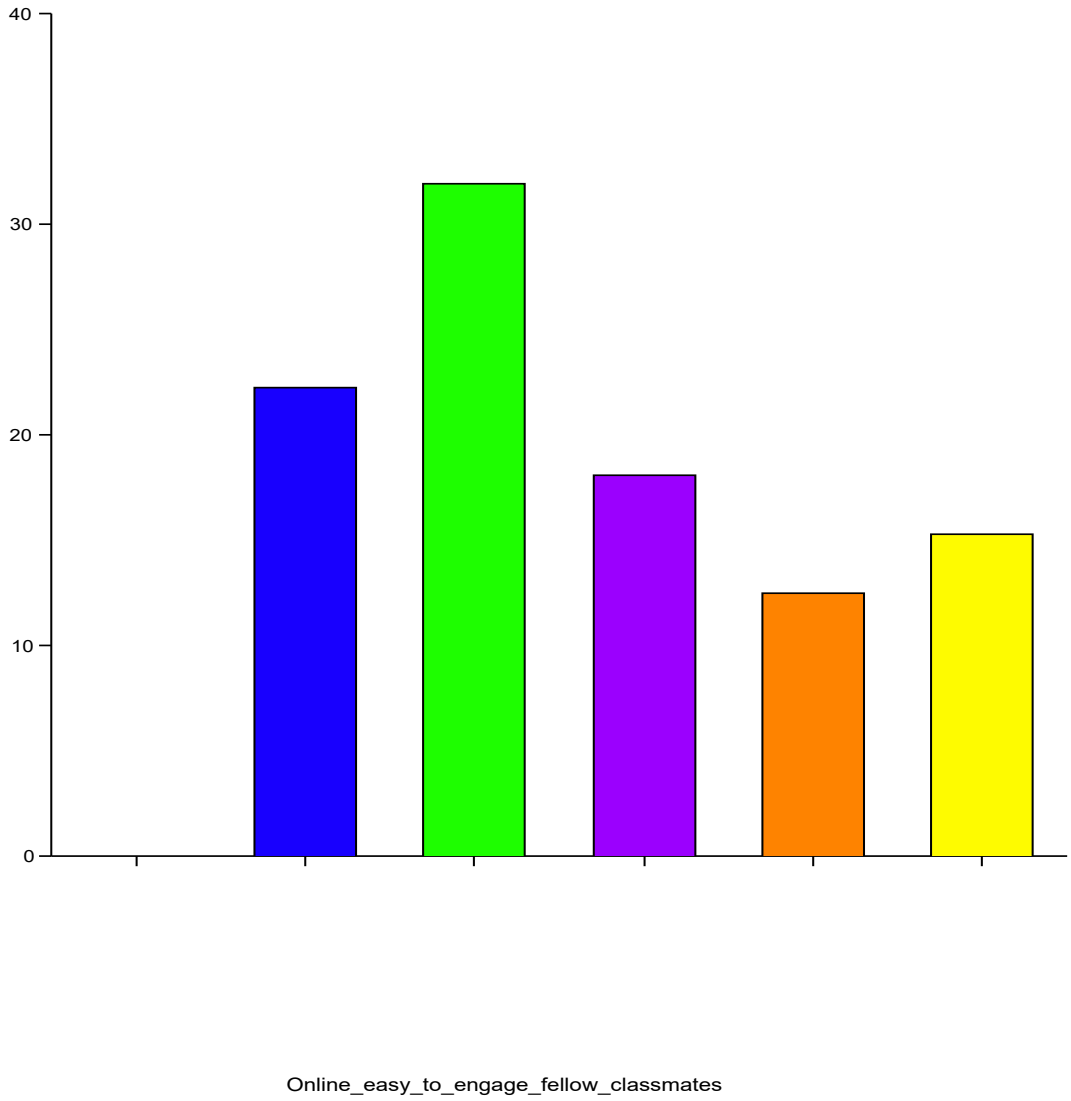

Figure 13: eLearning encouraged better interactions with fellow classmates

eLearning is rapidly becoming one of the most effective ways to impart education.

Figure 14 displays that 51 (70%) respondents agreed with the statement: “eLearning is rapidly becoming one of the most effective ways to impart education”. the proportion of 15 (21%) remain undecided, and 7 (9%) disagreed with the statement.

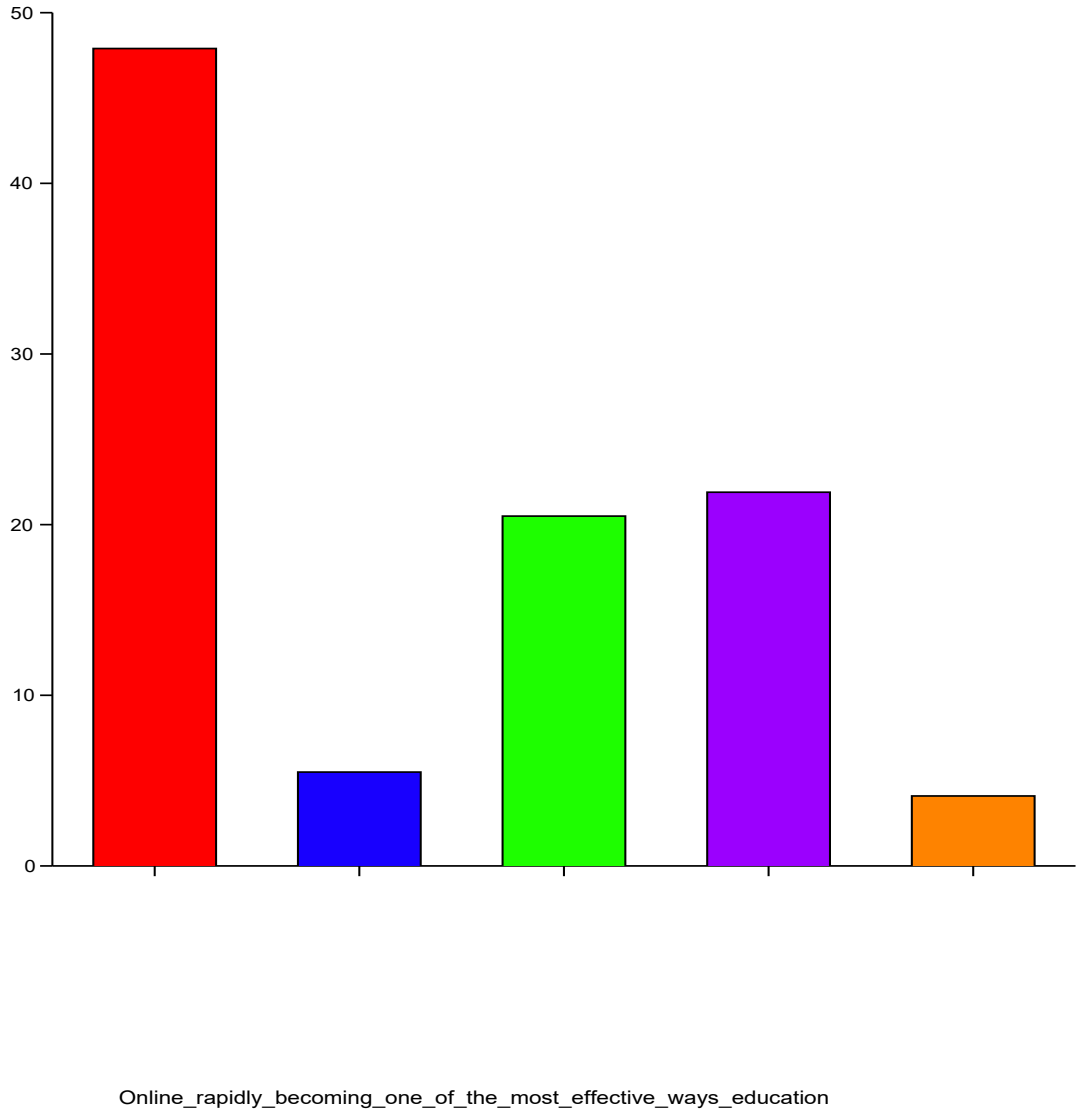

Figure 14: eLearning as an effective means to educate

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Convenience of eLearning.

Figure 15 shows that 46 (63%) respondents agreed with the statement: “It became very convenient for me to attend online classes”. However, a large number, 16 (22%) respondents are undecided. There are underlying issues not revealed that left respondent’s undecided.

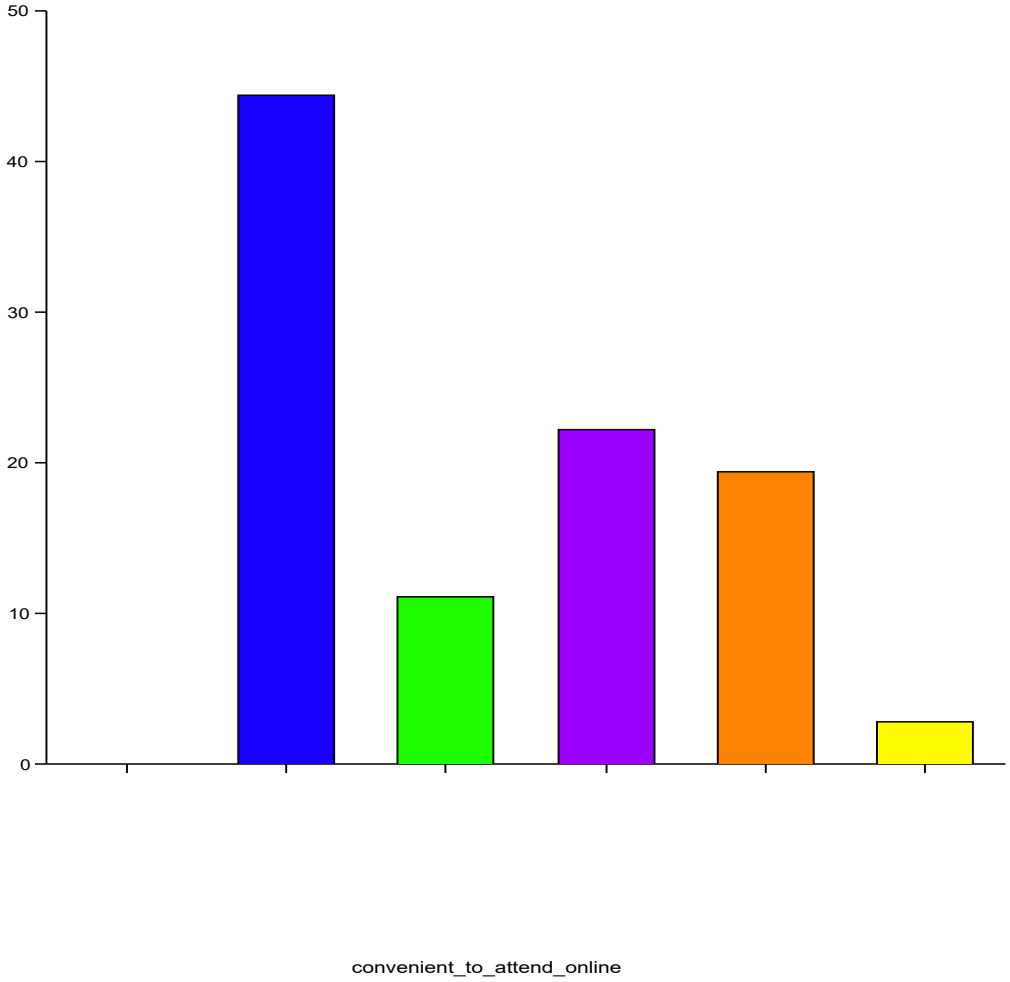

Figure 15: eLearning as a convenient method to attend classes

eLearning reliability and sustainability

Figure 16 shows that 54 (74%) respondents agreed with the statement: “Online classes are not completely reliable as internet connectivity plays a vital role”. Quite a large number, 12 (16%) respondents are undecided.

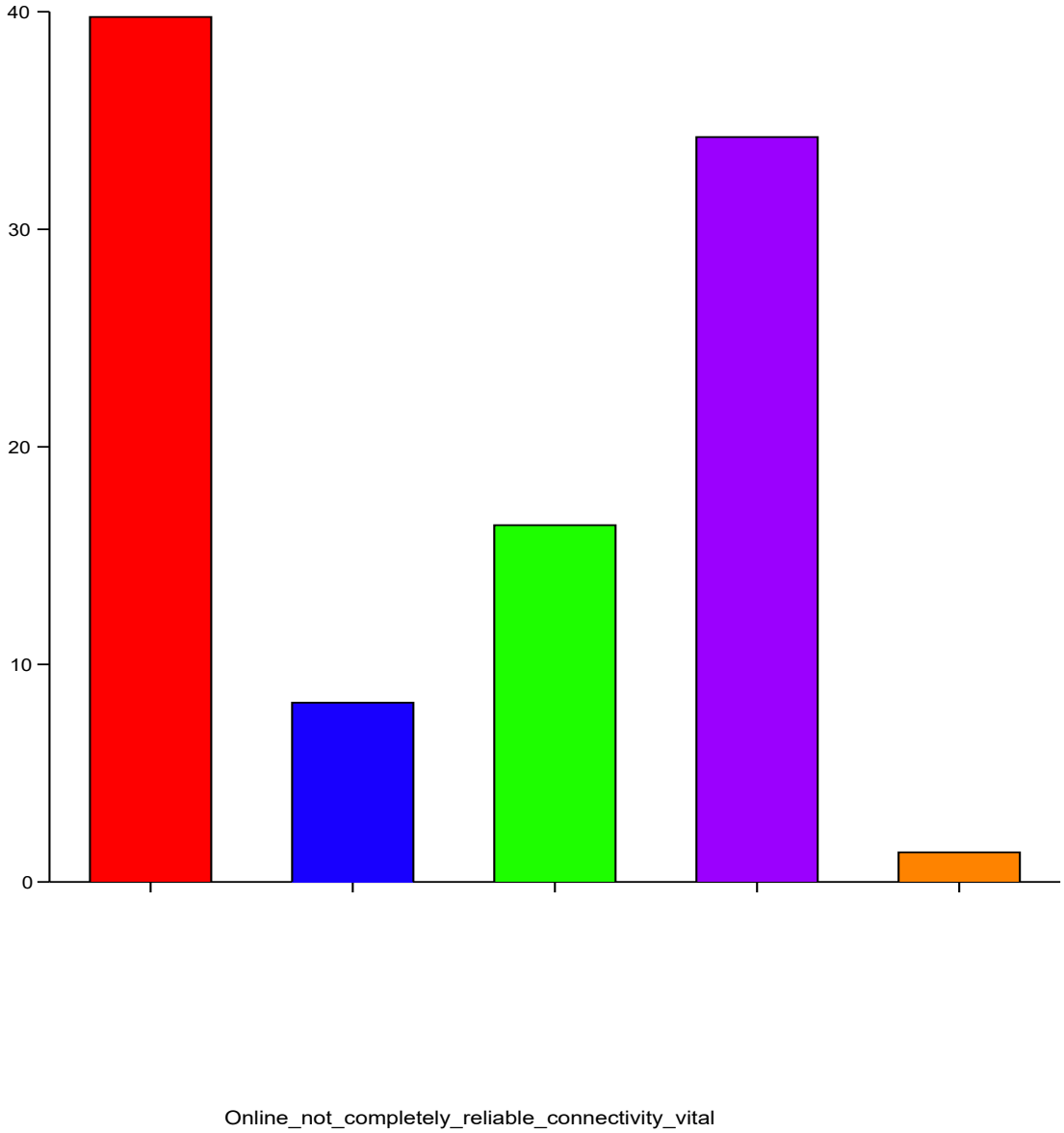

Figure 16: eLearning as a not reliable means of learning

eLearning content comprehension.

Figure 17 displays those 40 (56%) respondents agreed with the statement: “It is easy to understand the work done in an eLearning environment”, while 24 (33%) respondents remained undecided. That quite a number of respondents remain undecided indicate a need for following up.

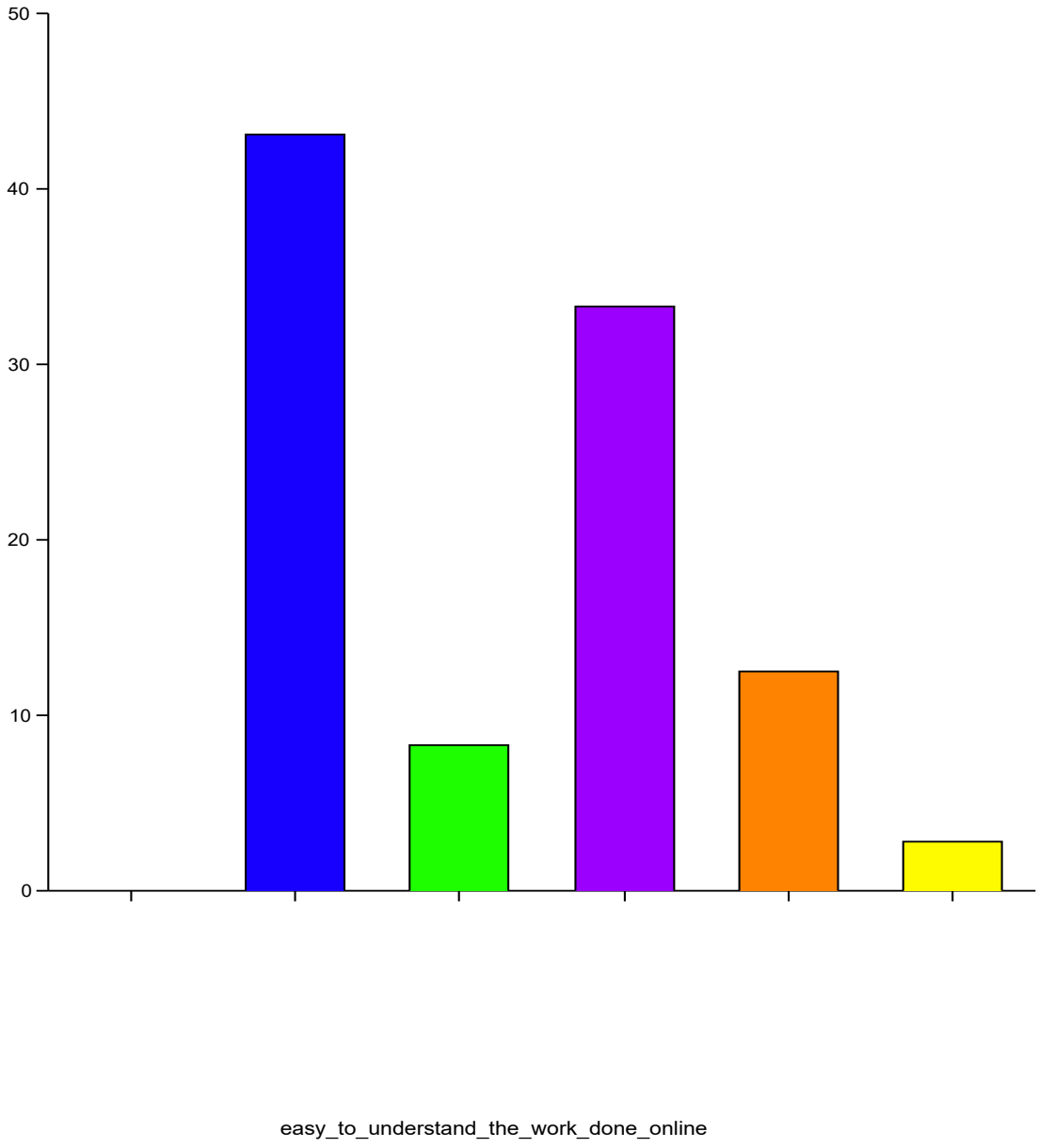

Figure 17: eLearning content comprehension

eLearning as a factor in improving academic performance.

Figure 18 displays those 47 (64%) respondents agreed with the statement:" eLearning created a conducive environment for me to improve my academic performance", while 18 (25%) remained neutral.

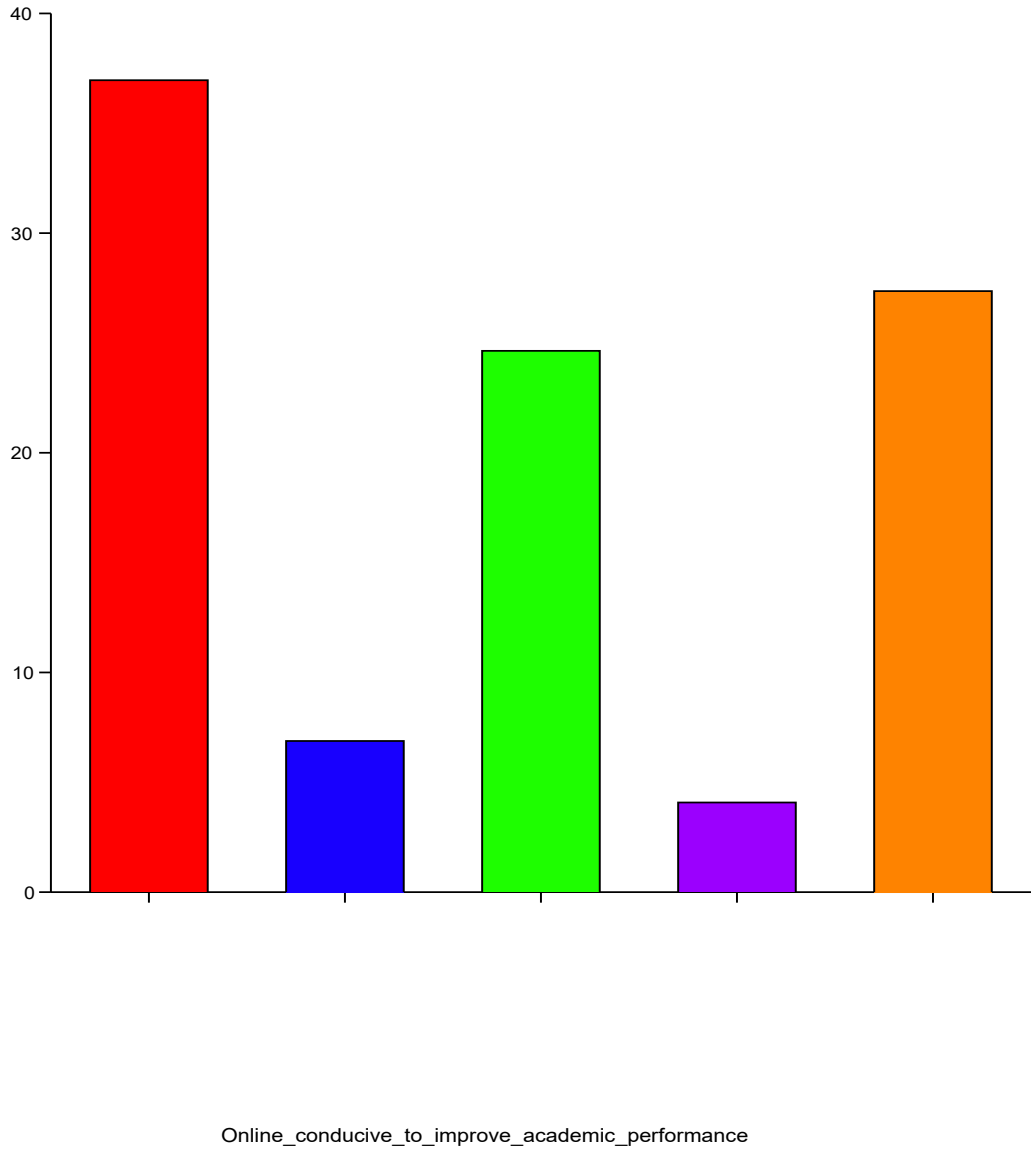

Figure 18: eLearning as a factor in improving academic performance

Eagerness to explore other eLearning tools.

Figure 19 displays those 55 (85%) respondents agreed with the statement: “I am inspired to use a variety of learning approaches through eLearning”. That 13 (18%) respondents remained undecided is perhaps thought-provoking.

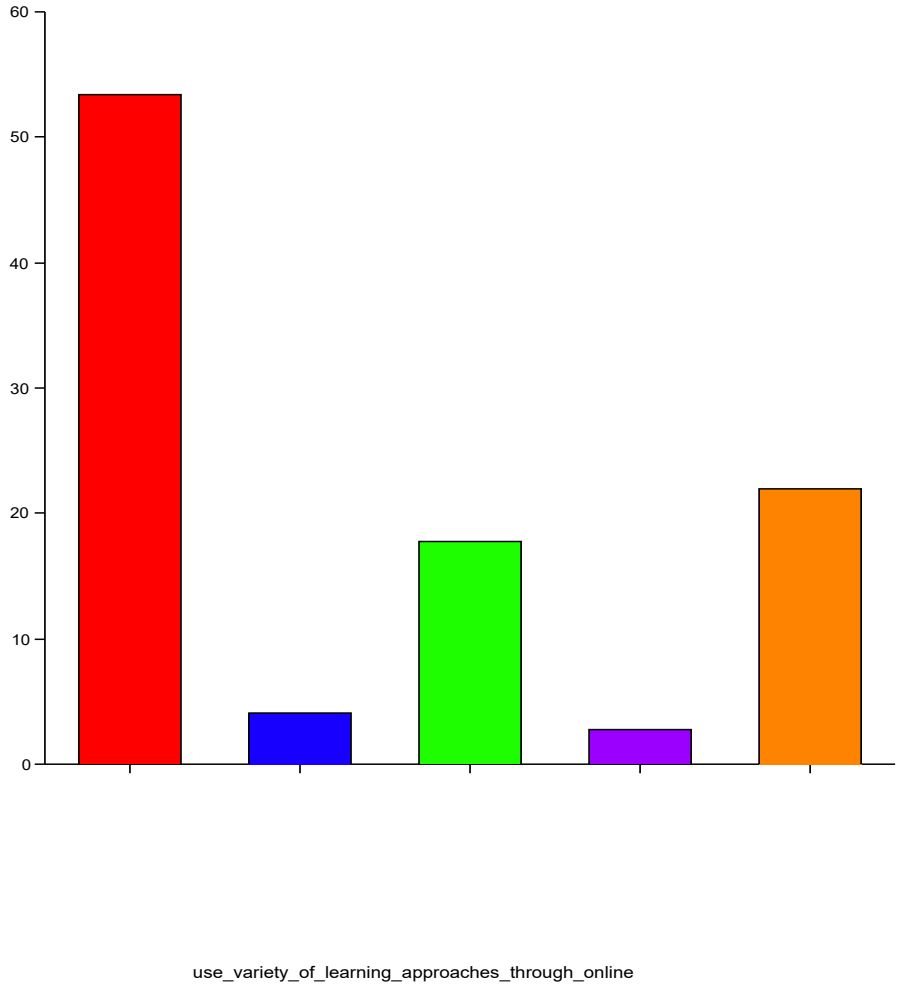

Figure 19: eLearning as means to provide various learning approach

University has implemented a proper plan for eLearning.

Figure 20 displays those 51 (70%) respondents agreed that the university has an appropriate implementation plan for eLearning. However, 19 (26%) respondents remained undecided and 3 (4%) disagreed with the statement.

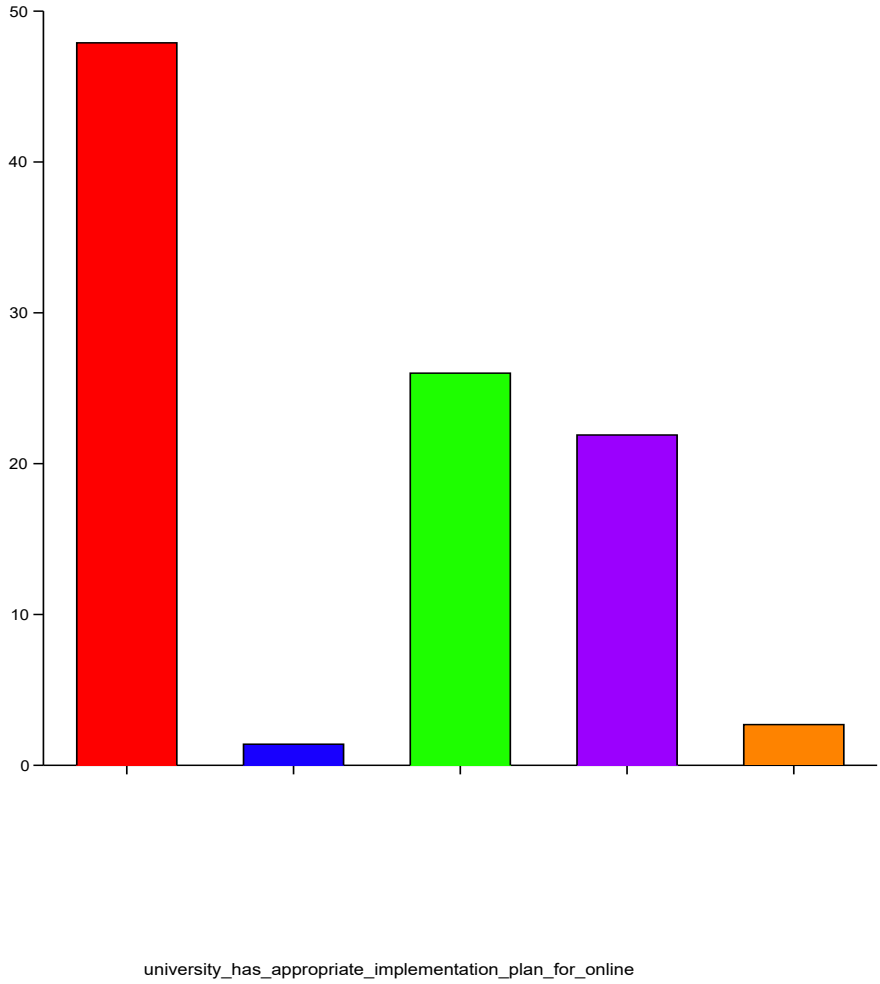

Figure 20: The University has implemented a proper plan for eLearning

The university provided the necessary support for online activities.

Figure 21 displays that 45 (62%) respondents agreed that they got the necessary support from the university to perform well in eLearning activities. However, 17 (23%) respondents are undecided.

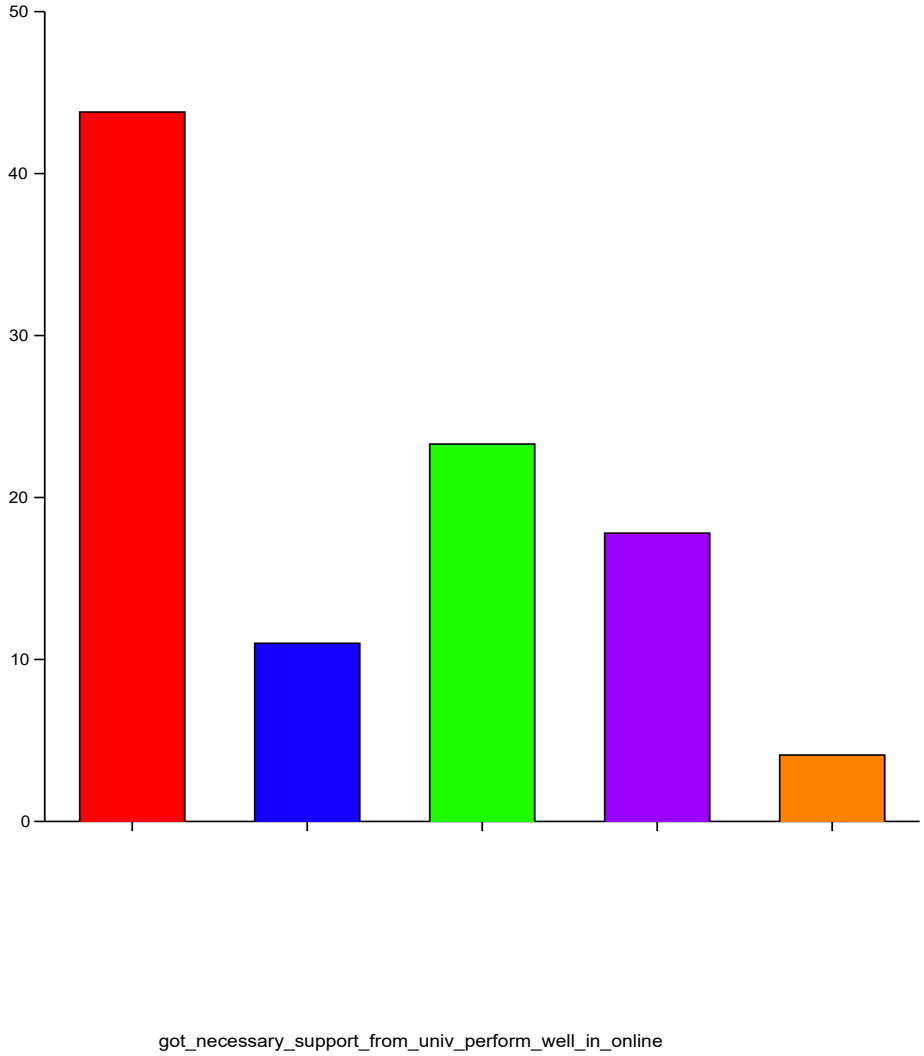

Figure 21: The University provided the necessary support for online activities

eLearning and face to face offer a similar advantage.

Figure 22 demonstrates that the majority, 29 (40%) respondents disagreed with the statement that there is no significant difference between in-person (face-to-face) learning and eLearning. However, 26 (36%) respondents%) respondents were unable to make up their minds about the statement, and only 18 (25%) respondents agreed with it. These findings support the assertion that there are significant differences in opinions about in-person learning and eLearning.

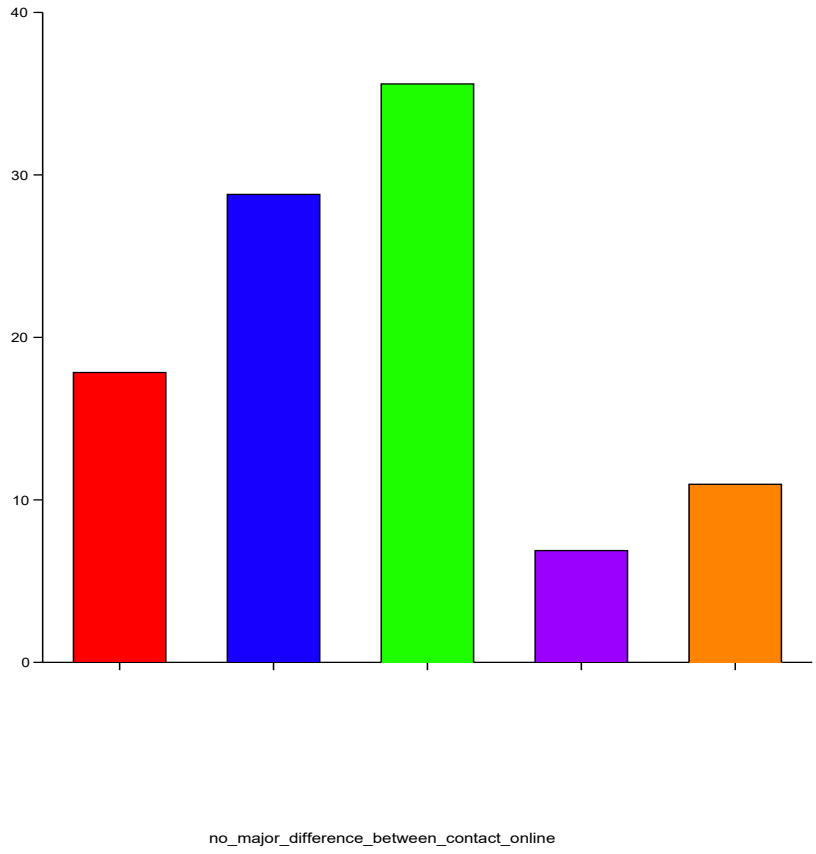

Figure 22: eLearning and face to face offer a similar advantage

Student participation improved because of eLearning.

Figure 23 demonstrates that 31 (42%) respondents confirmed that student participation improved because of eLearning. That 24 (33%) respondents disagreed, is in line with the previous statement that students felt differently about eLearning. On the other hand, 18 (25%) respondents are undecided.

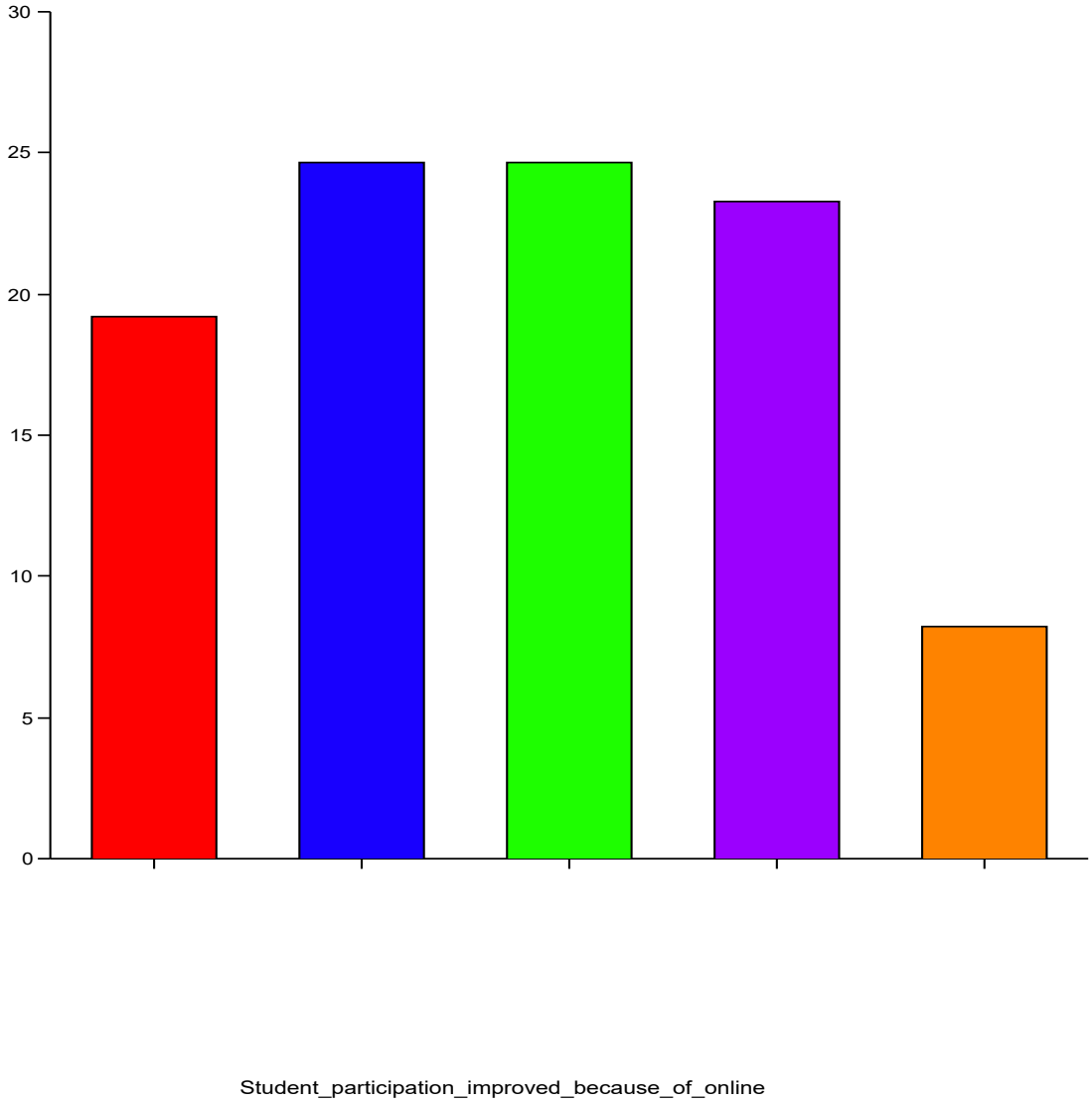

Figure 23: eLearning improved student participation

Participation in online classes improved comprehension.

Figure 24 shows that a total of 36 (49%) students support the statement that students' level of understanding improved when participating in online classes. It is thought provoking that 21 (29%) students were undecided and 16 (21%) disagreed. There are perhaps underlying issues not revealed and need further exploring.

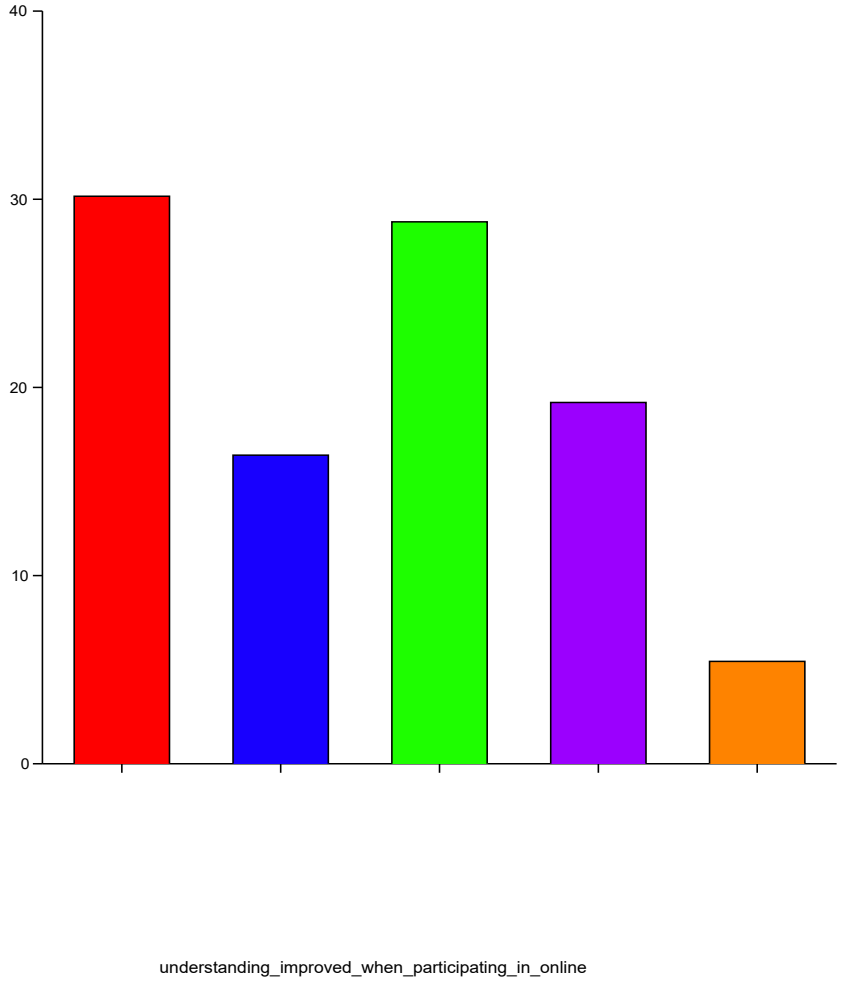

Figure 24: eLearning improved the comprehension of my lessons

Online environment promotes commitment to students.

Figure 25 shows that 36 (49%) of the respondents agree or strongly agree that the online environment promotes commitment to students. However, 21 (29%) of the respondents remain undecided.

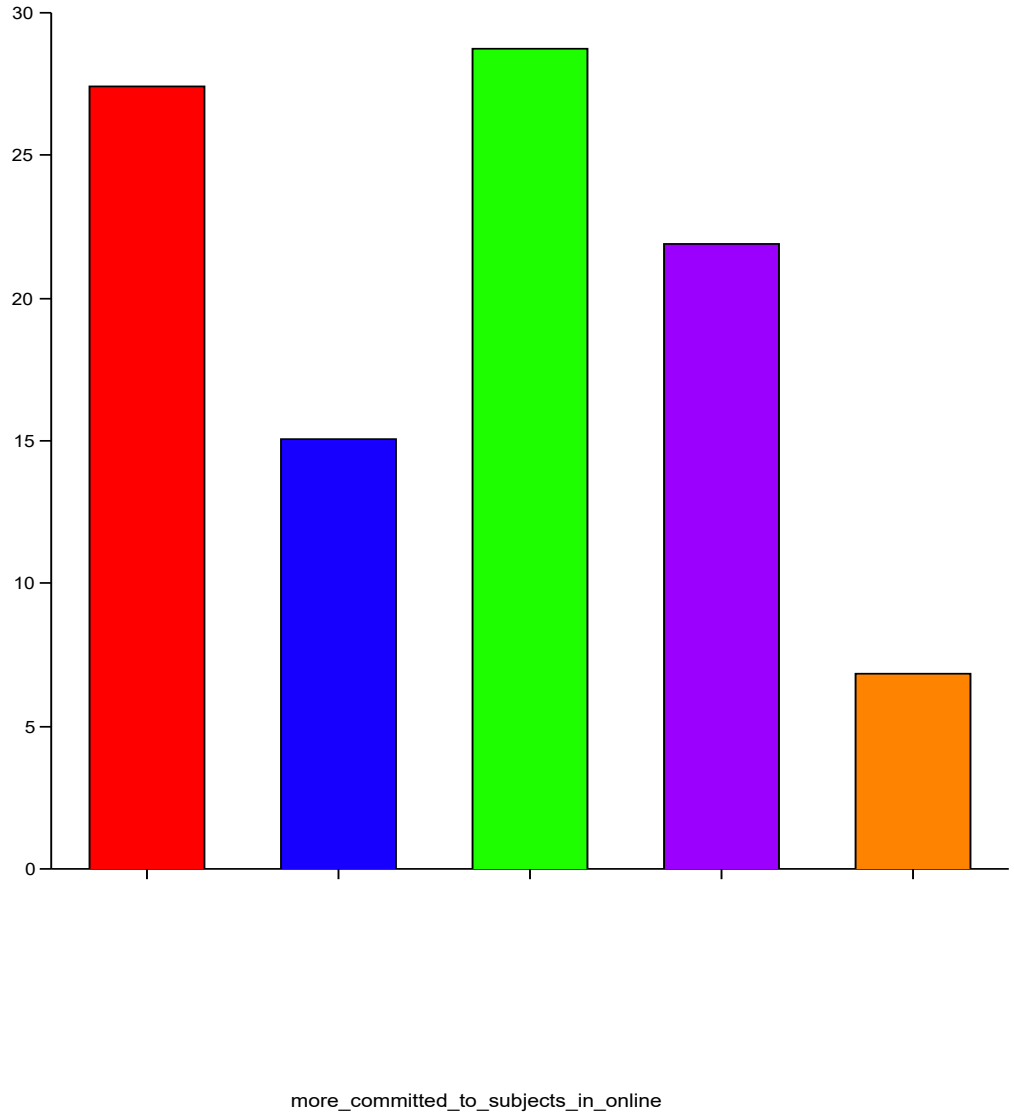

Figure 25: eLearning improved the comprehension of my lessons

There was a performance improvement in eLearning.

Figure 26 shows that 46 (63%) respondents agree or strongly agree with the statement: “I performed better in online assessments than sit-down exams”. However, 18 (25%) respondents are undecided, perhaps not sure about their performance on both teaching methods.

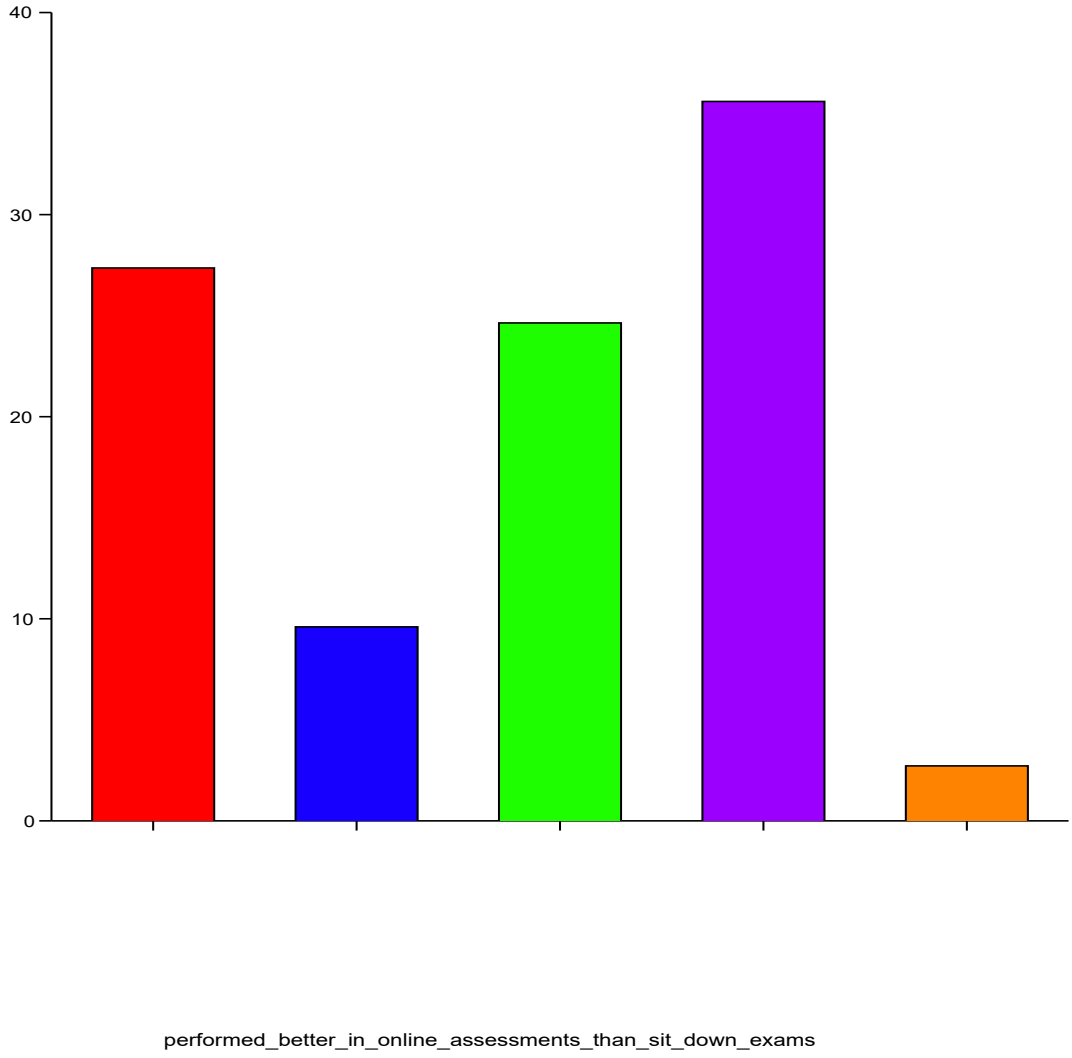

Figure 26: Students performed better in online assessments than sit-downs exams

eLearning did not improve academic performance of students.

Figure 27 shows that 44 (57%) respondents disagreed with the statement: eLearning did not improve the academic performance of students, in my opinion". However, there is quite a large number, 23 (32%) respondents, who are undecided. Considering this, there may be other factors that need to be brought to light in understanding student experiences with eLearning.

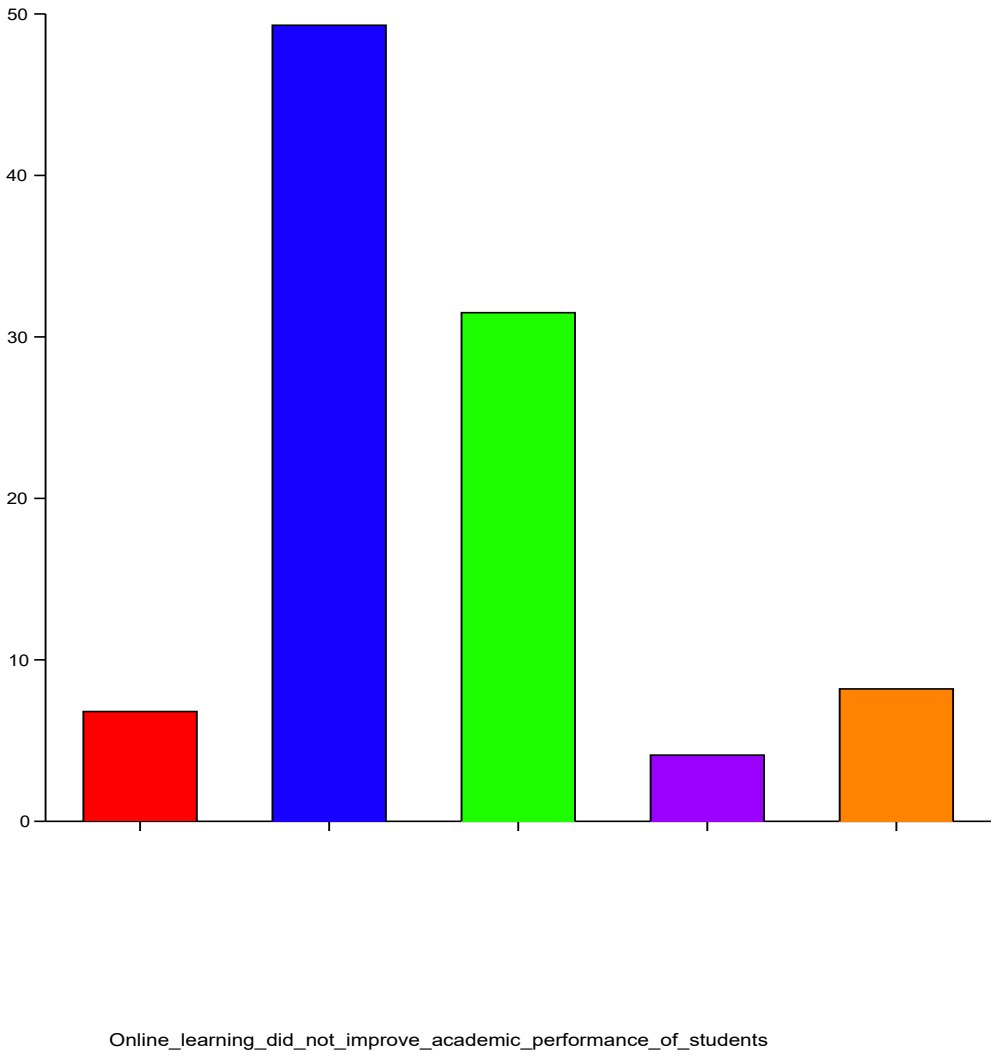

Figure 27: Performance of students did not improve in eLearning

eLearning enables students to work independently.

Figure 28 shows that 55 (76%) of respondents strongly agree or agree that eLearning enabled students to work independently. However, 15 (21%) respondents are undecided.

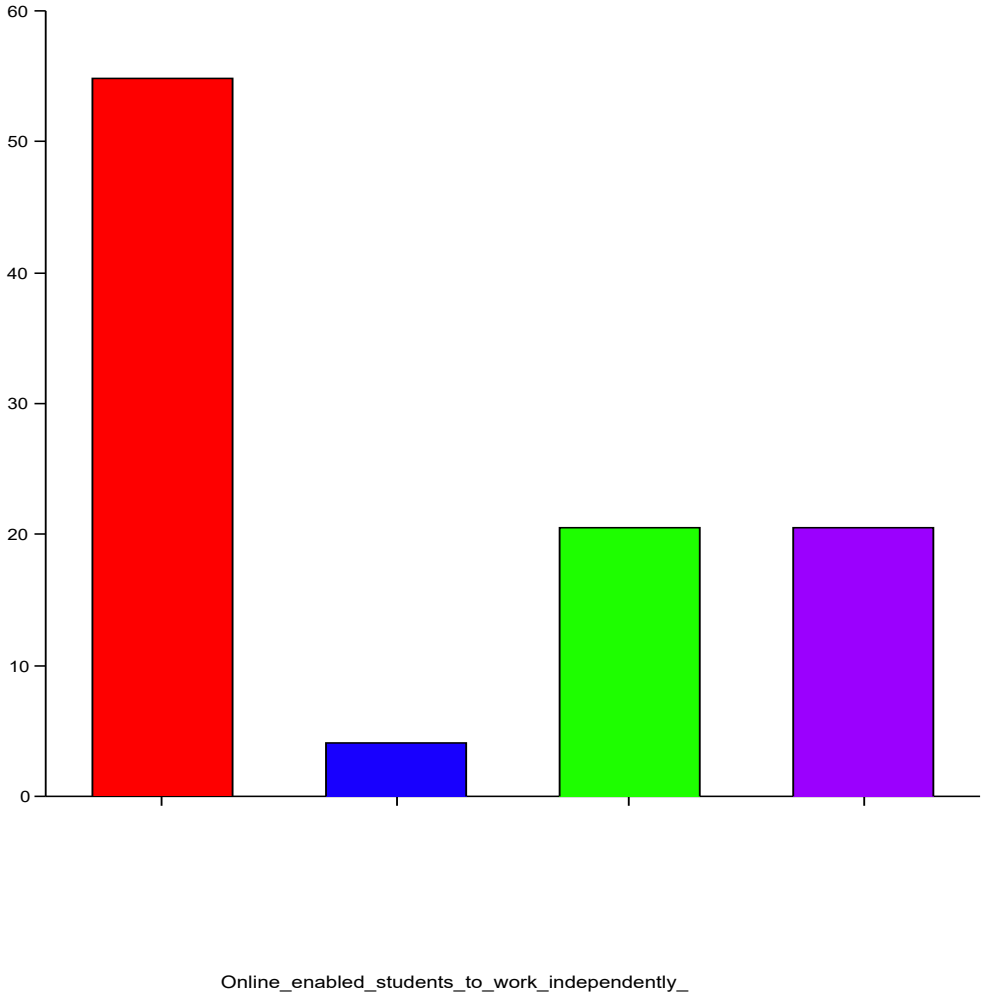

Figure 28: Online assignments help manage time better

Online assignments allow for better time management.

Figure 29 shows that 55 (75%) respondents strongly agree with the statement I can manage my time better when completing online assignments". However, quite a large percentage of 13 (18%) of respondents are undecided about time management when doing online assignments. Considering that the literature discussed self-paced learning and students having the flexibility to manage their time when participating online, it is revealed here that the majority of respondents concur with previous studies.

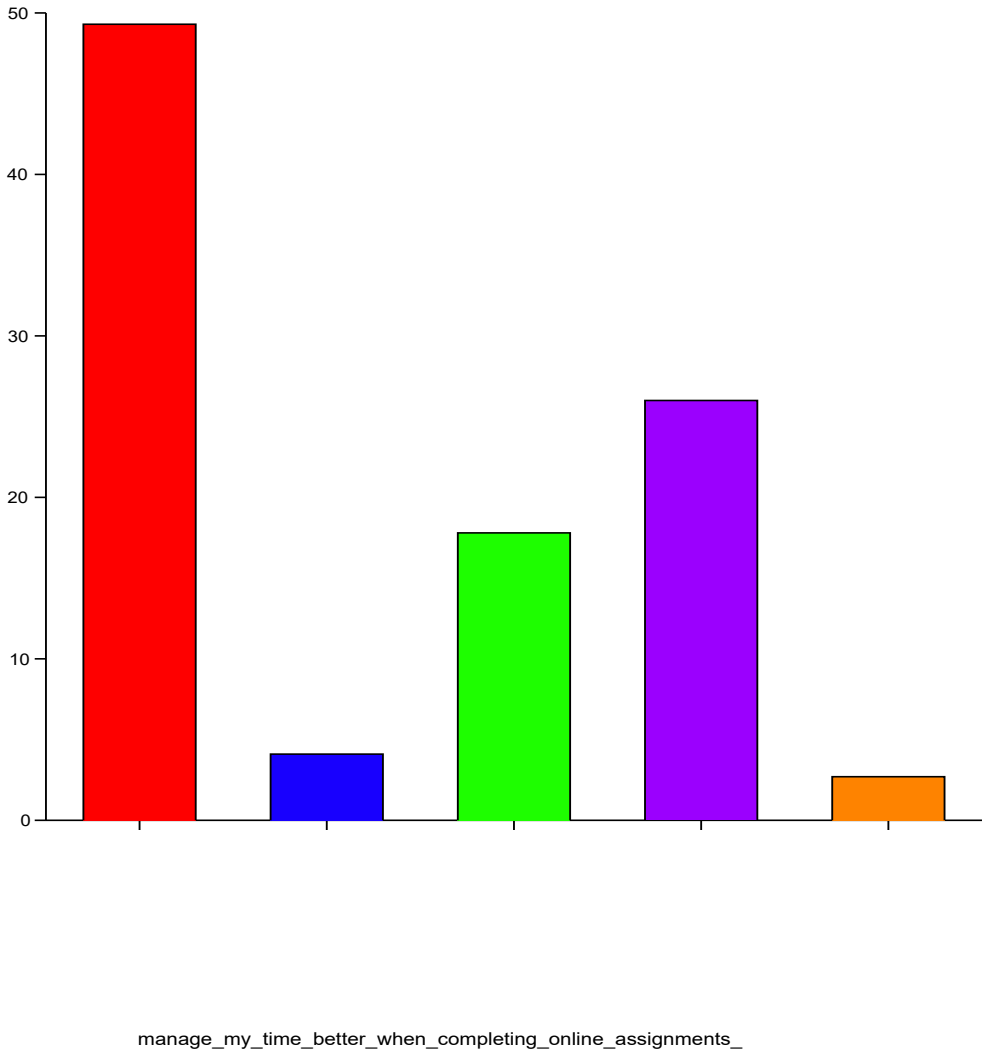

Figure 29: Online assignments help manage time better

eLearning is a great way to engage with other students.

Figure 30 shows 36 (49%) of the respondents agreed, or agreed strongly, that “eLearning is a great way to engage with other students". However, a large percentage of 16 (22%) of respondents are undecided. Perhaps because they are not sure or aware of the eLearning tools available that facilitate student engagement.

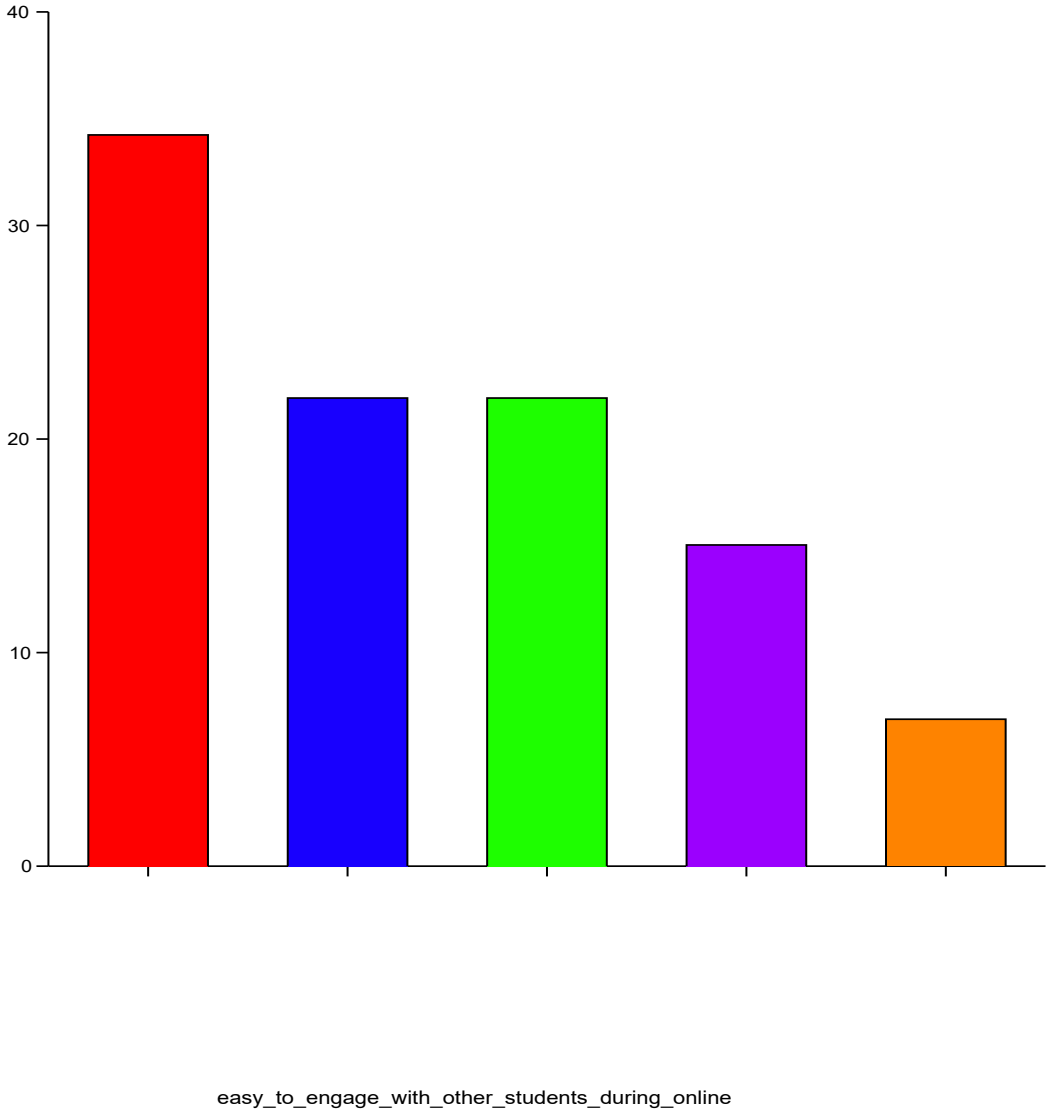

Figure 30: eLearning is a great way to engage with other students

eLearning reduces stress by allowing students to communicate more freely.

Figure 31 shows that most respondents 40 (55%), agreed or strongly agreed with the statement: “eLearning reduces stress levels among students, as many can communicate more freely”. A proportion of 19 (26%) of participants who did not decide regarding the assertion, remained undecided. That the majority of students agreed, confirms with responses to the previous statement on student engagement during online learning activities.

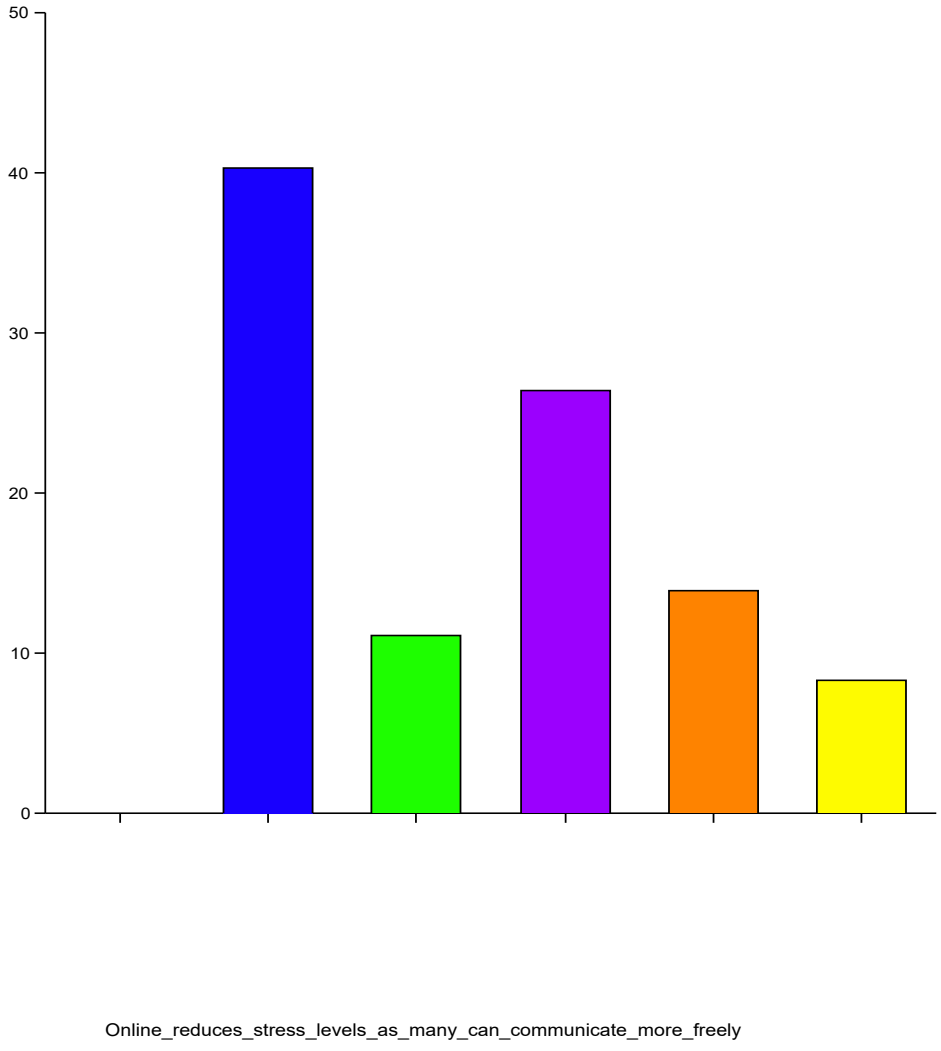

Figure 31: eLearning reduces stress by allowing students to communicate more freely

eLearning offers self-paced learning.

Figure 32 demonstrates that the statement "eLearning offers self-paced learning" was agreed by 81% of respondents. Despite that 15% of respondents were unsure, the majority confirms with the literature findings regarding eLearning allowing self-paced learning.

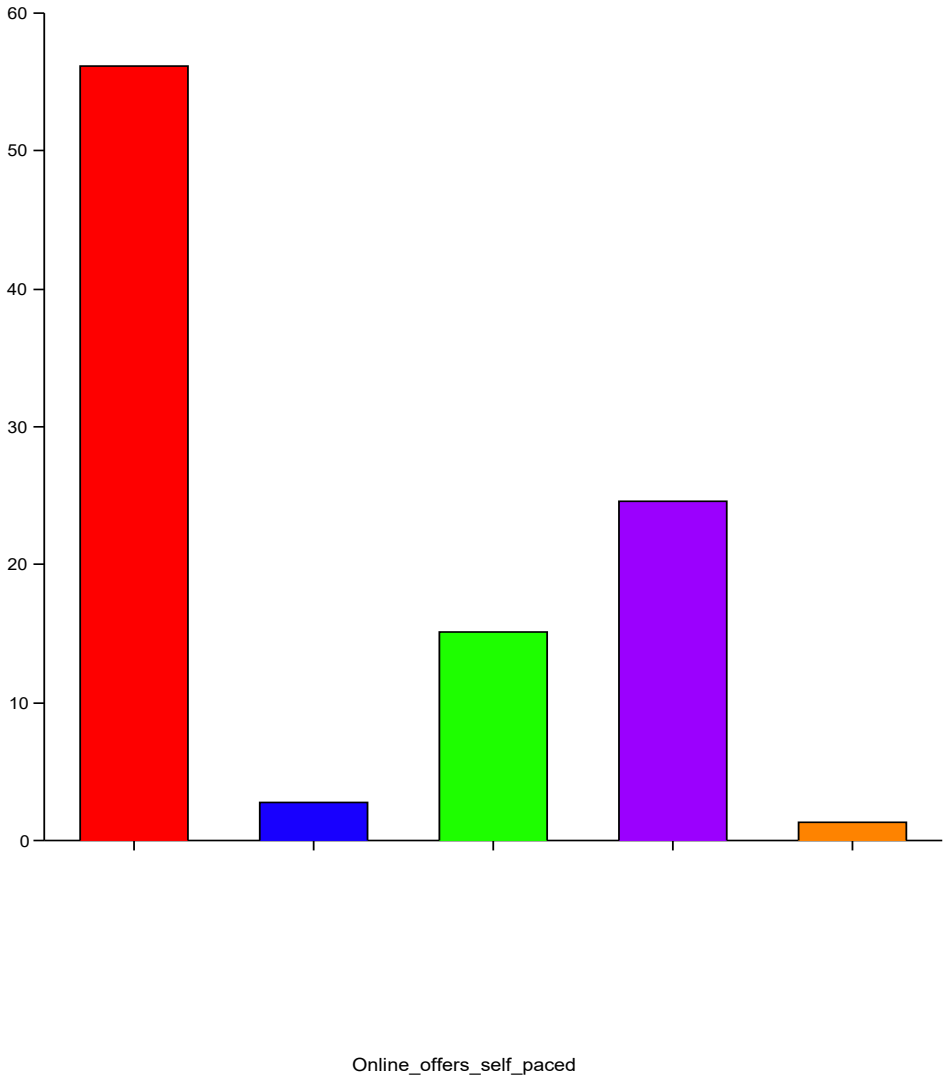

Figure 32: eLearning offers self-paced learning

eLearning has improved time management skills.

Figure 33 shows that 49 (68%) participants strongly agree or agree with the statement:" eLearning has helped me manage my time better". However, 16 (22%) respondents remained undecided. These findings are in line with previous responses about time management and confirms literature findings.

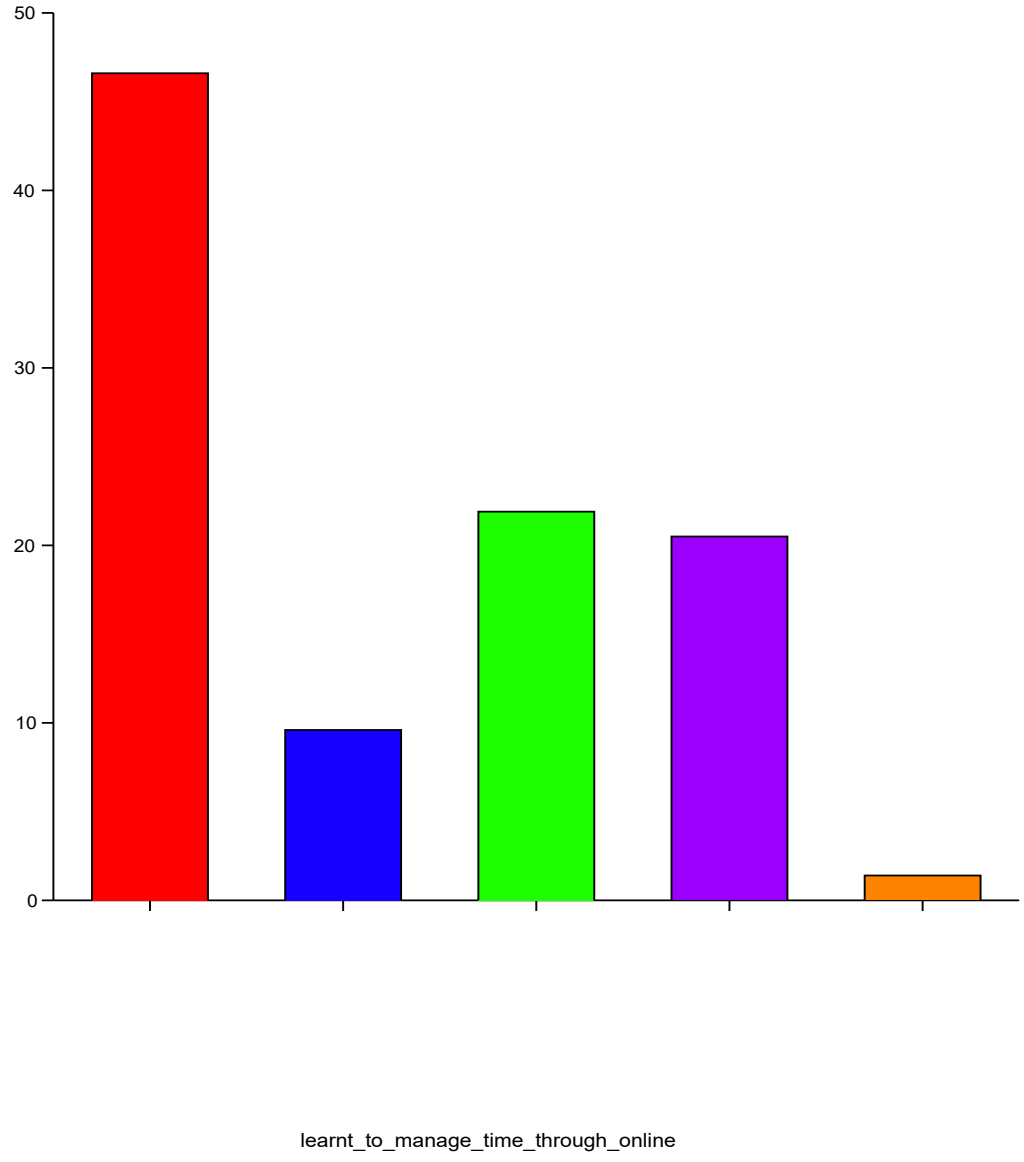

Figure 33: eLearning has improved time management skills

eLearning improved virtual communication between students and lecturers.

Figure 34 shows that 53 (73%) respondents agree or strongly agree with the statement “eLearning improved virtual communication between students and lecturers”. However, 10 (14%) respondents are undecided. These findings confirm with literature discussions that there were different experiences regarding lecturer-student communication during eLearning which ties in with the different delivery modes: asynchronous, synchronous and hybrid.

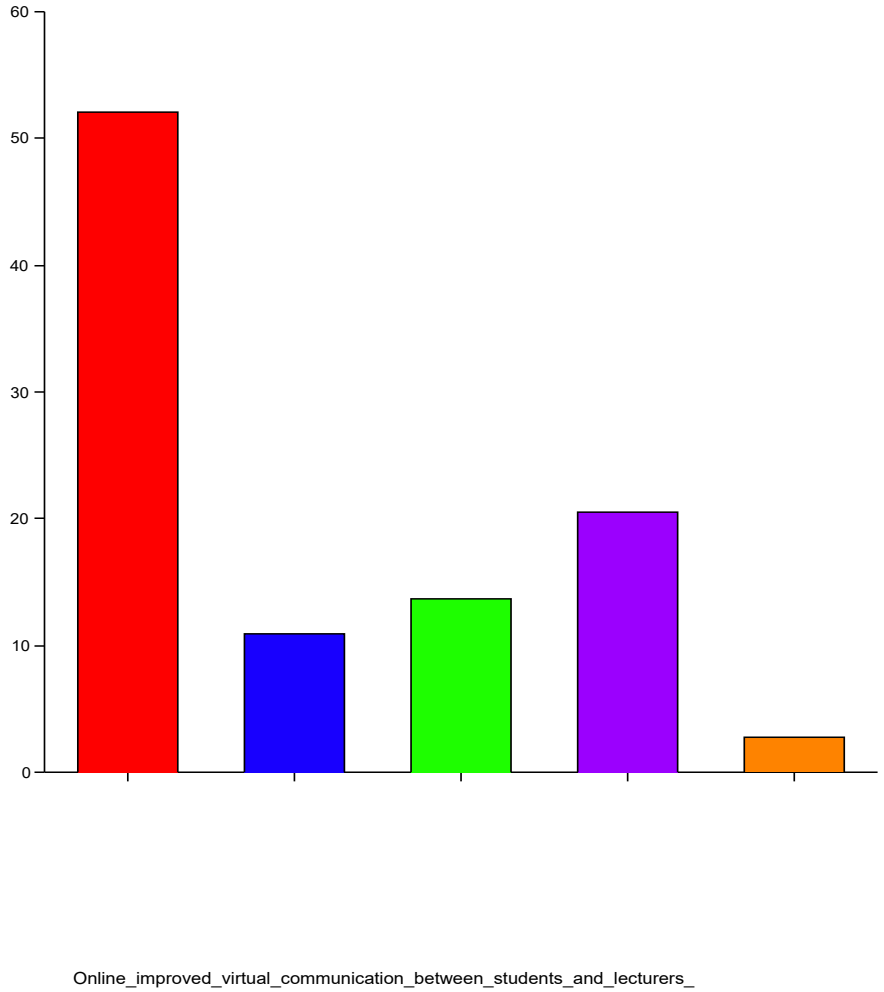

Figure 34: eLearning improved virtual communication between students and lecturers

eLearning made it difficult to work in groups.

Figure 35 shows that 56% of respondents agree or strongly agree with the statement: “eLearning made it difficult to work in groups”. However, 25% of respondents are indecisive about the statement.

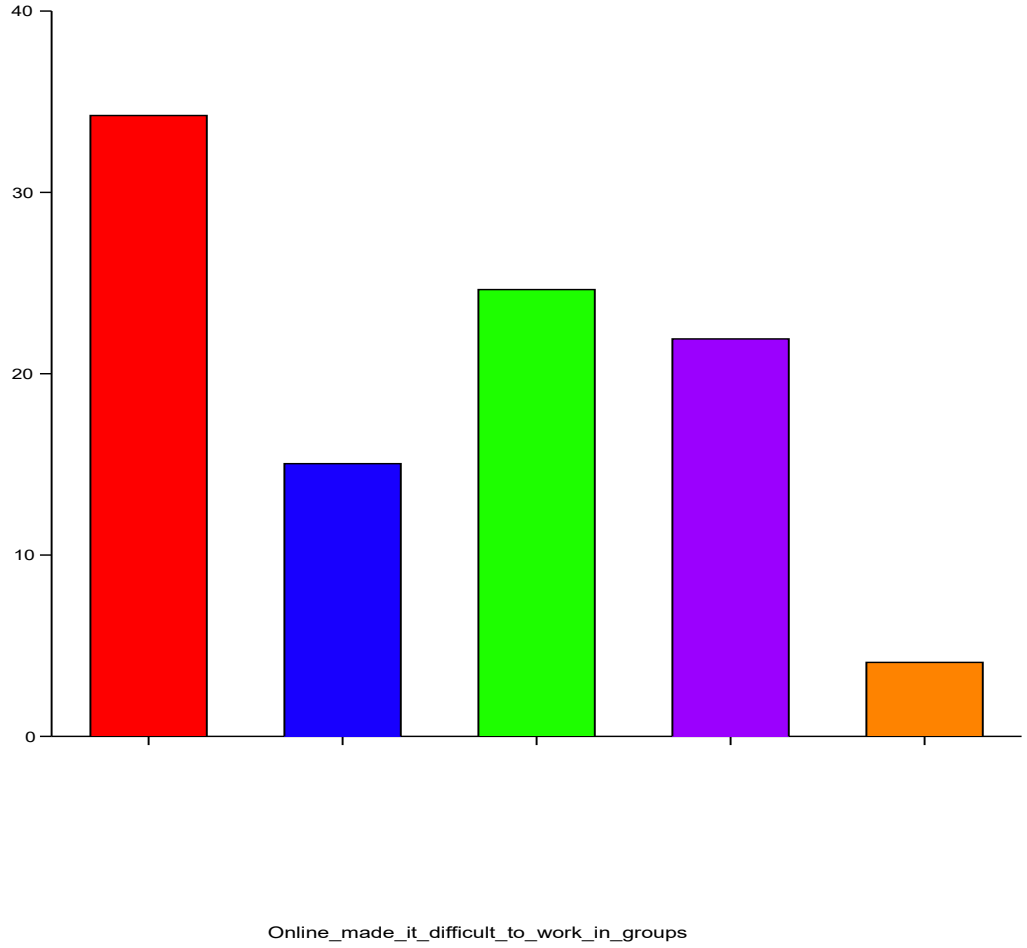

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Figure 35: eLearning made it difficult to work in groups

eLearning made it possible to explore new learning strategies.

Figure 36 reveals that 81% of respondents agreed with the statement: “I got opportunities to explore new learning strategies”. However, 15% of respondents are undecided about the statement.

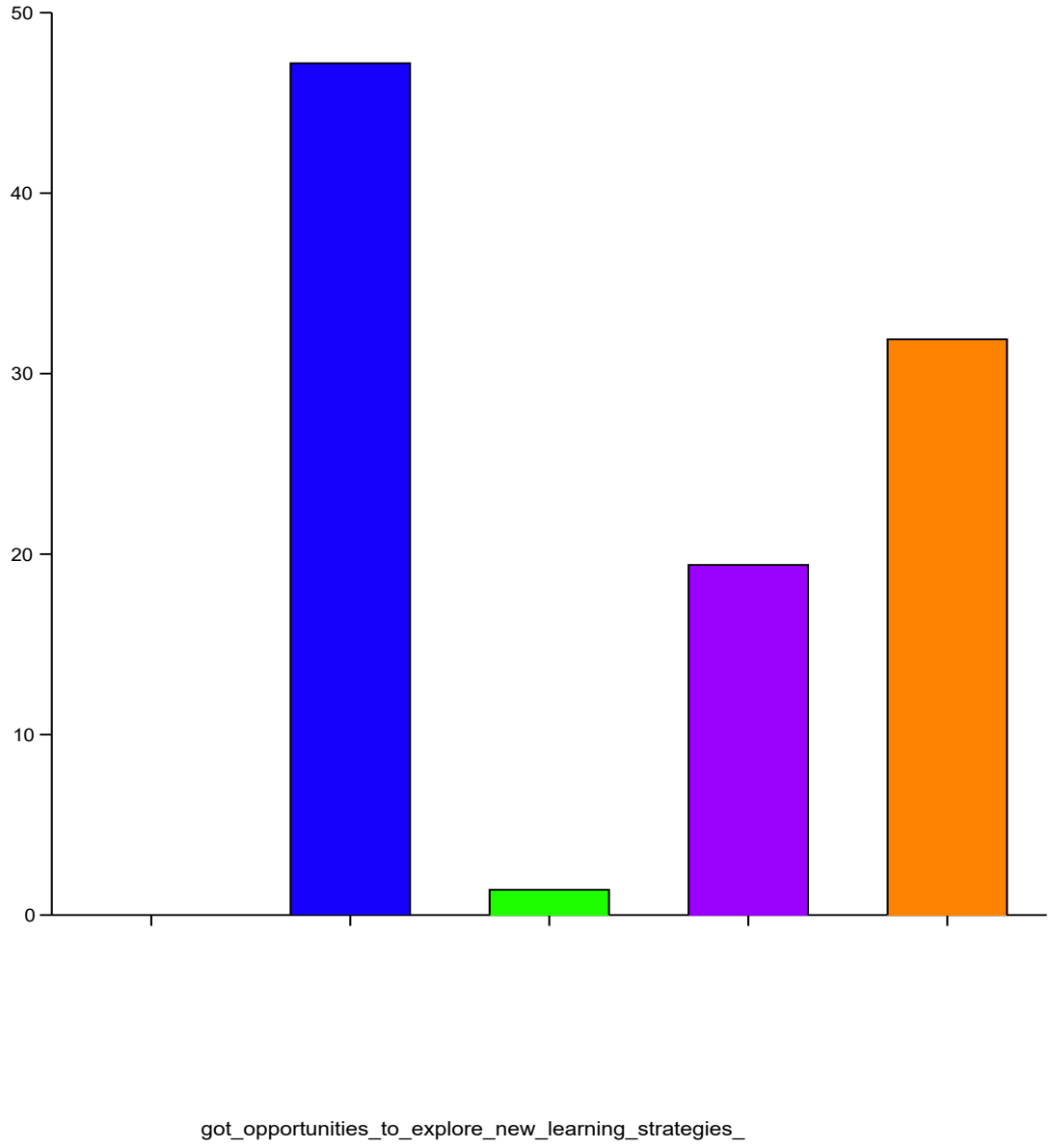

Figure 36: Explore new learning strategies

eLearning increased learning participation

Figure 37 shows that 53% of respondents agree or strongly agree with the statement: “My participation in learning activities improved because of eLearning”. However quite a significant percentage (29%) of respondents are undecided.

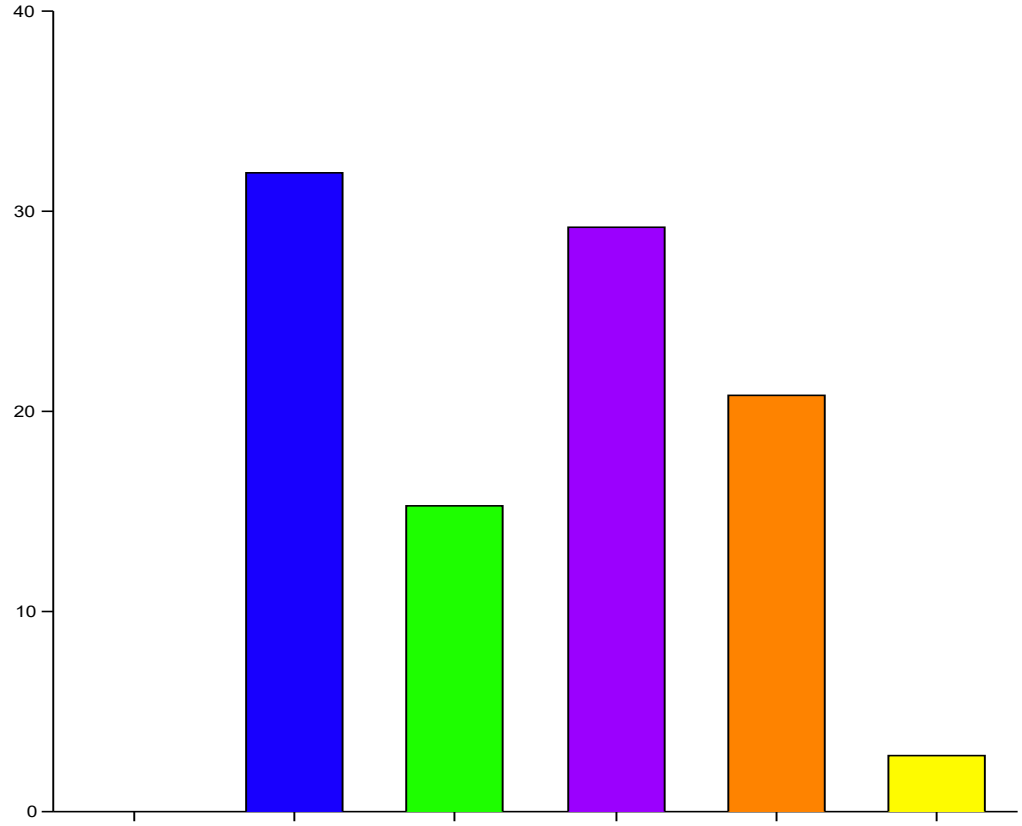

Figure 37: eLearning improved participation in learning activities

4.2.4 Section D: Tools, skills, and support accessible to students participating in eLearning

Skills acquired before starting with eLearning activities

Students were asked to indicate skills they acquired prior to engaging in eLearning. The top 3 skills obtained by respondents before participating in eLearning are: used the Internet (22%), of typing skills (20%), and time management (16%). Other skills that students indicated, such as communication, creating documents, reading and writing, were all in the range of 2%.

Devices used for eLearning.

A question was posed to respondents to indicate what devices they were using for eLearning. Answers revealed that 42% of respondents used smartphone devices and 34% of respondents used desktops for eLearning activities. Furthermore, 17% of respondents reported that they used notebooks / laptops and 8% of respondents used tablets for eLearning activities.

Methods of internet connection used for eLearning.

The next question prompted students to indicate how they went about connecting to the Internet for eLearning and had the opportunity to select more than one option. Most of the respondents, 45%, revealed that they use mobile data. The remaining 38% use CPUT Wi-Fi, and 17% use fibre from their homes. Only 13% and 4% access the Internet via VPN and an Internet café, respectively.

How much money do you spend monthly on mobile data for eLearning.

Students were asked to indicate the amount of money spent on mobile data for participating in eLearning activities. The answers showed that 38% of the respondents spent between R40-R200, and 33% spent between R250-R500 on mobile data for eLearning, while 19% is using the CPUT data/Wi-Fi provided to students. 10% of the

students revealed that they spent between R600 and R1000 on mobile data for eLearning.

Other apps used for eLearning besides official apps.

Students were asked to indicate which APPS they were using for eLearning. Responses highlighted that the MS TEAMS APP is used extensively by 56% of respondents. Following this, 11% of respondents indicated that they used Zoom, 10% used YouTube and Google Scholar. It is perhaps thought provoking that 5% of respondents indicated that they use the low data intensive APP, WhatsApp for eLearning.

Effect of load shedding on eLearning activities

Students were then asked to indicate how loadshedding affected their eLearning activities. Most students revealed that load shedding negatively impacted online classes. For instance, they emphasised that online classes were cancelled or postponed, which had a significant impact on respondents' learning process. Some said they even missed exams due to loadshedding, which led them to having to write sick tests. Sometimes, they would experience load shedding in the middle of the class. These were confirmed by the following respondents:

"Very bad, classes of the whole day can be cancelled because of different schedules of different residents that students come from".

"Very badly because the internet becomes slow during loadshedding".

"Load shedding is affecting my online learning very bad because I sometimes fail to attend classes on time end up watching recording even during exams I end up writing a sick test due to load shedding".

"Loadshedding has impacted my online learning activities in a negative way as it makes it difficult for me to prepare for classes which I will not be able to attend in real time as well as complete tests or assessments at the indicated times".

“It has a huge impact on my studies. For goodness's sake, we are students at a University of Technology, yet students that stay are Residences are not provided with data. That means when there is loadshedding, studying stops and classes stop. The WIFI here it's even faulty and doesn't not offer a continuous connection, it just stops connecting in the middle of the class”.

“Negatively. Classes are postponed or cut short due to loadshedding. Studying during the night is also made difficult as all lights are off and I have to rely on my phone's torch light. Network is bad and I am unable to join online sessions and tests are pushed back to accommodate everyone's loadshedding's schedule”.

Blackboard as an eLearning platform

Students were asked to indicate whether Blackboard is a suitable platform for online teaching and learning. Figure 38 shows that 95% of respondents reported that Blackboard was a suitable eLearning platform.

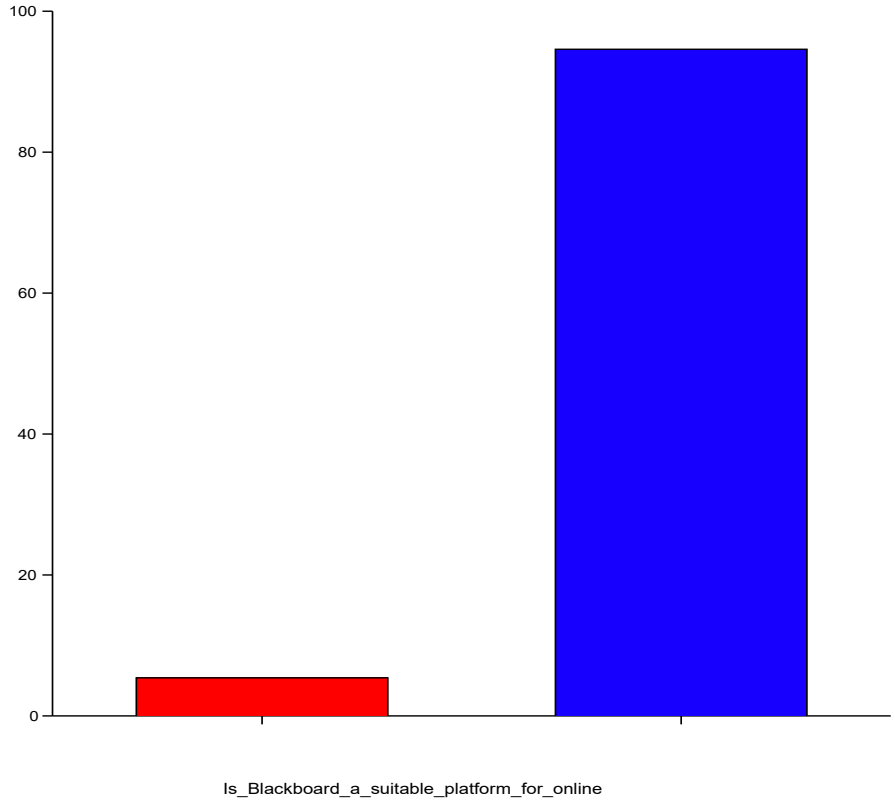

Figure 38: Blackboard as a suitable platform for online teaching

Students' perception of lecturers eLearning skills

Students were asked to indicate whether they thought lecturers had the necessary skills to teach online. Figure 39 shows that 86% of respondents believed that lecturers have the skills required to teach online, while 14% indicated that they did not think so.

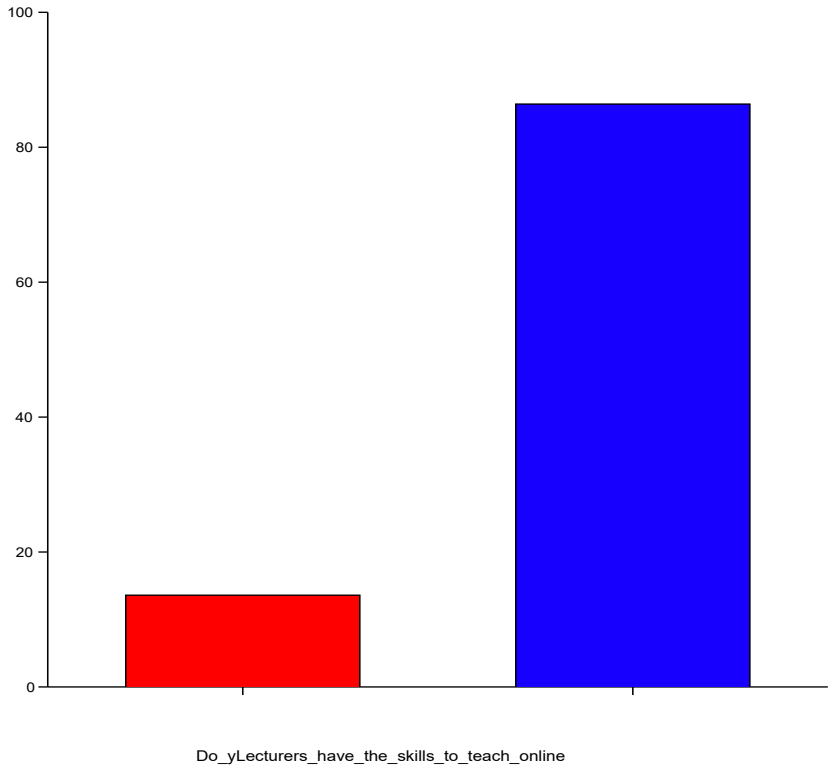

Figure 39: Lecturers had the necessary skills to teach online

Other eLearning activities performed on mobile device.

Students were asked to indicate what eLearning activities were performed via their mobile device. Answers revealed that 26% of respondents used their mobile device to access online classes via Blackboard Collaborate/Teams, and 24% used their mobile device to communicate with classmates through the practical subject's WhatsApp group. Furthermore, 22% of respondents highlighted that they accessed content through the Blackboard app, 15% completed quizzes via their mobile device, and

surprisingly, 13% used their mobile device to access information via CPUT libraries website.

Additional comments

Students were provided with an opportunity to add any additional comments at the end of the questionnaire. The following responses were thought-provoking, as they provide a deeper understanding of students' experiences of eLearning:

"*Online learning is beneficial for students, but it needs to happen in a way that all students are present and participating*"

"*Everything has its pros and cons therefore nothing will be perfect. However, we can make the best out of what we have if we are positively like-minded, determined and goal oriented. All the best with your investigation and future endeavours fellow CPUT student. Take care*"

"*Online learning helps to develop self-dependency*"

"*For the sake of future students, online learning is not education. I am not against digital development in any area but when it comes to teaching and learning, it is a bad tool"*

"*I feel that CPUT went out of their way to ensure that students are functioning well under the circumstances. The Student Counselling course on Blackboard is doing an exceptional job as a student assistance mechanism. It is benefiting me in a tremendous way*".

"*We are not ready to use online option only as there are a lot of challenges, and they are a lot of things to consider*".

"*Online learning is great, and it is very helpful for students who never had the privilege to learn Computer related studies as computer skills are very important to acquire for further education and in the world of work".*

"*Your Questionnaires are very insightful and easy they not complicated, all the best for your thesis*."

"*Online learning brings more misery than face to face classes which provides more platform for students to engage with their lectures*."

"*Hope that this investigation is really not going to be taken for granted and such information can be taken to relevant authorities, and I as a student appreciate such investigations by the institution and mostly by the researcher*".

"*I'm more into digital and I believe that we have to adapt and learn new skills through technology to improve our learning experience*".

"*Online learning is a great concept but not in South Africa where there is unemployment and lack of infrastructure. Online learning needs money and infrastructure in order to accommodate all and not a small minority of individuals".*

"*Going forward the institution should make sure the first-year students they first get the chance to learn face to face before completely going online a feel of both maybe so that they can know each other and by that it will be easy for them to interact with each other and to work together in groups".*

"*Online learning has been a Good shift for some students because it's gave us necessary skills on terms of using Computers and laptops also with time management....Good luck with your Investigation".*

The responses provided in the additional comments confirms with earlier findings that revealed that students have mixed feelings about eLearning.

4.3 Examining of Tables

This section compares analysed data in the form of two-way tables to determine any connection between variables.

Table 4: is comparing the relationship between where students live , and the amount of money spent on mobile data during the eLearning activities. The majority of students living in a CPUT residence are spending in the range of R40- R1000on mobile data. The cause of this might be loadshedding that force respondents to spend this money

on mobile data. When the power is off the respondents need to use their mobile data because Wi-Fi is not working on residence.

Table 4: Residence vs Money spent on mobile data.

How_much_money_monthly_on_mobile_data_for_online residing_during_studies

	040-200	250-1000	CPUT_Other	Total
CPUT residence	56	52	47	52
Home Relative	36	36	27	34
Private	8	12	27	14
Total	100	100	100	100

The number of rows with at least one missing value is 8.

Table 5 : is examining the connection between the length of time students have studied at CPUT and the duration of their computer use. Most of the responders have studied for one to four years at CPUT and have five years of computer experience. One possible explanation for this could be that they completed CAT in high school, which gave them computer literacy prior to attending university.

Table 5:Period of studying vs years used a computer.

Period_studying_at_CPUT years_have_you_used_computers.

	1-4	4-6+	Total
0-5	52	17	49
06-10	24	17	23
11-15	13	50	16
GE16	10	17	11
Total	100	100	100

Table 6: This table compares the number of years that students have used computers to how much better virtual communication has become between them and their teachers. The majority of students have been using computers for more than five years, which may be the cause of the improvement in communication between them and their lecturers during e-learning.

Table 6:Online improved communication between students and lecturer's vs years have used computers.

Online_improved_virtual_communication_between_students_and_lecturers_					
years_have_you_used_computers	**1 Strongly agree**	**2 Agree**	**3 Neutral**	**4.5 Negative**	**Total**
0-5	67	42	70	30	49
06-10	13	32	20	10	23
11-15	13	18	0	30	16
GE16	7	8	10	30	11
Total	100	100	100	100	100

Table 7: This table focuses on the response's preference out of the three possibilities for the number of years they have used computers. The majority of respondents said they select the combo; this may be due to the fact that both help students to grow academically. Most students enjoy discussing course material with Lecturers , and the online setting restricts that. The Lecturer must be aware of how long each session must last because of factors like load shedding, network problems, and other constraints on other students' data. However, the benefit of being able to take class from the comfort of your home is convenience. As well as They serve diverse purposes. For example, in a practical module like business application, it is preferable to attend in-person classes; yet, in other modules, online instruction is preferable.

Table 7:Preference face to face, eLearning, or Combination.

Preference Face to face online or combination	years have you used computers	Total
0-5		
3		100
06-10		
0		100
11-15		
0		100
GE16		
0		100
Total		
1		100

The number of rows with at least one missing value is 3

4.4 Chapter summary

This section summarises the outcomes of the data collected from 2nd – and 3rd- year students enrolled for the Business Applications subject in the BIA department in the Business and Management Sciences Faculty.

The first section (A) of this chapter reported on the biographical details of respondents that participated in the questionnaire, followed by (Section B)the perception, and experience of students engaging in face to face versus eLearning activities. Section C summarised the responses to statement questions on eLearning experiences and Section D reported on skills required by academics, and support required by students participating in eLearning. The main findings are:

- 64% of respondents declared that eLearning created a conducive environment for them to improve their academic performance.

- 63% performed better in online assessment compared to sit-down exams.
- 45% disagreed that it was difficult to grasp the content of the work taught through eLearning.
- 49% agreed that eLearning is beneficial for all students.
- 63% agreed that eLearning is flexible as they can study any place as long there was internet connectivity.
- 100% affected by load shedding negatively during eLearning.
- 55% of respondents agreed that eLearning reduced stress levels among students, as many had the opportunity to communicate more freely.
- 81% of respondents agreed they got opportunities to explore new learning strategies through eLearning.
- 75% of respondents strongly agreed they can manage their time better when completing online assignments.
- the top 3 skills obtained by respondents before participating in eLearning are: used the Internet (22%), of typing skills (20%), and time management (16%).
- 42% of respondents used smartphone devices for eLearning activities.
- 69% of respondents agreed that Blackboard is a suitable platform for online teaching and learning.
- A large number of respondents remained undecided about many aspects relating to eLearning chapter's summary and analysis will be discussed in the next chapter, to address the research questions.

CHAPTER 5 INTERPRETATION OF FINDINGS

5.1 Introduction

Chapter 5 interprets the responses reported on in the previous chapter, in an attempt to answer the research questions. In the current study, the researcher explored the factors that have influence on student performance during eLearning. The findings generated themes that suggest students residing in different areas were faced with quite different circumstances in accessing eLearning. It was also established that majority of students performed better during online classes compared to face to face. The research questions posed in this study are addressed in this chapter, which also tries to explain what the results signify, and whether the research questions can be answered. The research questions are:

1. What is the influence of eLearning on students at a University of Technology in the Western Cape?

2. How does eLearning influence students at a higher educational institution at a University of Technology in the Western Cape.?

3. What are the benefits of eLearning for students from a University of Technology in the Western Cape.?

4. What can be done to improve the performance of students during eLearning at a University of Technology in the Western Cape?

5.2 What is the influence of eLearning on students at a higher education institution in the Western Cape?

Responses to this question are provided by the study. The objective of this question was to find out what the experience and perspective of the participants were with eLearning, and how it affected their academic performance. The following findings highlight how eLearning influenced students' academic performance:

64% of respondents declared that eLearning created a conducive environment for them to improve their academic performance.

63% performed better in online assessment compared to sit-down exams.

45% used mobile data to connect and participate in activities, and 38% used the institution's Wi-Fi. to connect during eLearning.

45% disagreed with the statement that said it was difficult to grasp the content of the work taught through eLearning.

49% agreed that eLearning is beneficial for all students.

63% of respondents agreed that eLearning is flexible as they can study any place as long, they had internet connectivity.

All respondents (100%) indicated they are affected by load shedding negatively during eLearning.

56% agreed that eLearning made it difficult for them to collaborate.

In some other way, eLearning has influenced individualism; students now find it easier to have group meetings, and even to assist each other with collaboration and peer learning. Compared to traditional or face-to-face classes where students can have a conversation after class and discuss school projects, online classes made it difficult for one to have conversation with peers, said one of the students.

With this information, it can be confirmed that while eLearning had both advantages and disadvantages, the overall goal, and the main objective of making students understand their course better was achieved. eLearning influenced students to study better compared to when they were participating face-to-face. These findings are in line with the studies conducted by Lee (2018: 1264) and Li (2022: 30), that demonstrated how online instruction helped students gain technological skills and

prepared them for the world of work, whereas the findings by Vanourek (2020: 23), Schott and Marshall (2018), and (Husaj, 2020) discussed the complexities associated with the online learning environment that students faced, such as technological difficulties, and remaining engaged and motivated.

Since the materials were always provided to respondents in this study via an online platform and classes were recorded and uploaded on these platforms, this channelled students to visit the eLearning platform regularly. It also influenced them to go through their materials often, until they understood what is required of them. eLearning enhanced students' study time. More students could now listen and study material online repeatedly until they understood the concepts on which they were working.

As indicated by numerous studies such as Müller and Mildenberger (2021) and Ogbonnaya et al. (2020), the participants in this research have demonstrated that eLearning has provided students with the freedom to study independently and on their own timetable. This has been especially advantageous to students enrolled part-time who have other obligations, such as employment and family. Through eLearning, students can now access courses from any location in the world, without having to relocate. This has allowed students to take courses that may not have been available otherwise. Therefore, as discussed in the literature review, eLearning has the potential to be more affordable than conventional classroom instruction. Students can cut costs on textbooks, accommodation, and transportation. A study conducted by Dhawan (2020: 5-22) agrees that eLearning proved to be a profound influence on the flexibility of students in higher educational institutions in the Western Cape. With the emergence of eLearning platforms, students can now pursue their education without the constraints of time and location. One of the most significant positive points gleaned from the study is that eLearning provides students with the flexibility to study independently and according to their own timetable. Unlike traditional classroom-based learning, online courses are designed to be self-paced, which means that students can complete the course at their own speed. This is beneficial for students with other obligations, such jobs, or families, and cannot attend classes at a fixed time. Therefore, eLearning allows students to balance their academic pursuits with other responsibilities, without compromising the quality of education.

The following response from students supports this:

R1: *“At-least eLearning has given us flexible time to study, especially us part-time students. We can even listen to classes while in a bus or driving back home.”*

R8: *“It easy to get in touch with other student and lectures especially WhatsApp.*

With online classes we can now work and study at the same time.”

R35: *“This is a blessing* [in disguise] *for part-time students, now we can never be late for classes since we can access classes at anytime and anywhere in world.”*

R64: *“This made me to have more time even with family.”*

The study revealed that students prefer to access study materials at any time. This confirms findings by Dhawan (2020: 5-22) that through eLearning platforms, students can access course materials such as lectures, videos, and discussion forums from anywhere with an Internet connection. This means that students can review course material multiple times and at their convenience, allowing for deeper learning and retention.

It is crucial to remember, though, that there are drawbacks to online learning. Technological problems include poor Internet access and computer failures, might interfere with students' educational opportunities as pointed out by Vanourek (2020: 23), Schott and Marshall (2018), and Husaj, (2020), which can reduce their adaptability. Since students do not have the same face-to-face connection with their peers and teachers as they would in a typical classroom setting, eLearning can also be alienating. This may result in demotivation and feelings of loneliness, which could have a detrimental effect on students' performance. Husaj (2020) mentioned the importance of motivating students and keeping them engaged during online learning.

The following response supports this:

R53: *“It was difficult for me to ask or discuss any school material with my peers also load shedding disrupted most of the class”.*

5.2.1 Time management

Students claim that eLearning promoted better time management skills, as students took greater responsibility for their own learning. This means that they must plan and prioritise their studies, set their own goals, and manage their time effectively to meet deadlines and complete assignments.

Students assert that eLearning has given them more freedom and control over their schedules, on the one hand. Without the limitations of a set class schedule, enrolled students access course materials and work at their own speed in online courses. Due to their ability to plan their days around other obligations like job, family, or other duties, students may be able to better manage their time.

The following response supports this:

R1: “This has taught me to manage my time properly because managing several subjects with a fluid timetable is a lot of work”.

In contrast, some students mentioned that eLearning at times may tempt them to put-off study work until the last minute. This confirms findings discussed earlier by Husaj (2020) that emphasised the importance of students being self-motivated and disciplined when engaging in eLearning activities.

The following response supports this:

R45: “eLearning needs discipline because there are lots of distractions and lack of cancellation. The fact that you can access notes at any time can lead to last minute study and failure”.

The online learning environment creates additional challenges because students face increased distractions and interruptions which reduce their ability to focus on their studies. Students who study online often experience the temptation to visit social networks and browse the Internet and perform other non-academic activities during their studies, as found in the study by Schott and Marshall (2018) discussed in Chapter 2.

It is therefore realised that there are multiple factors that influence students' academic performance through eLearning. As much as students have the flexibility and apply individual learning preferences during eLearning, it does require students to manage their time well and have determination to successfully complete their studies. Thus, having the willpower is essential for students to maximise their eLearning experience.

5.2.2 Cost of data

Findings demonstrated a digital divide between students who lived at home, who rely personal data for access to the Internet, versus students who stayed at the university residence that have access to Wi-Fi connection. This is in line with previous research findings in African countries that data costs were too high and hindered eLearning (Ferri et al., 2020; Bogusevschi, 2020). Due to the Internet-based nature of eLearning creates a challenge for students who lack financial means to pay for data needed to access eLearning resources. In addition, the inability to participate fully in online synchronous classes, access course materials, communicate with instructors and peers, leads to restricted learning opportunities and decreased academic performance especially for students who face financial challenges. Contributing to the dilemma is the report discussed earlier, that although Internet Service Providers in South Africa have attempted to lower data costs, mobile data prices remain higher than those in other African nations (Moyo, 2022).

Beyond the high cost of data needed to participate in eLearning activities, affects student motivation, leads to poor learning results, stronger feelings of isolation and disengagement. Students who cannot afford data expenses, experience anxiety about their academic progress and their ability to finish their assignments before deadlines. The situation therefore creates additional stress that negatively affects mental health and learning capabilities. This confirms literature findings discussed in chapter 2, that the existence of the digital divide was a reality for many students who found themselves needing to remain at home geographically (Kajee & Balfour, 2011). Moreover, this can perpetuate existing social and economic inequalities, and limit opportunities for upward mobility.

The following response supports this:

R34: “The cost of data made me miss a lot of classes during the pandemic”.

In summary, the price of data has significantly impacted higher education in South Africa limiting access to eLearning resources, reducing engagement, increasing stress and anxiety, and contributing to educational inequality. To address these challenges, governments and institutions must prioritise providing affordable or free Internet access to students and also ensuring the infrastructure (as there is a need for more network towers) is in place, particularly those of low-income backgrounds, to guarantee equitable access to high-quality education for every student Sartika et al. (2021:419).

5.2.3 Load shedding

The majority of research done outside of South Africa do not address the issue of power cuts. Currently, it seems as if there are a considerable amount of power cuts in South Africa compared to many countries (Matli, 2020). This study finds that one of the main disruptors of eLearning, according to students studying at this higher educational institution in the Western Cape, is load shedding. The scheduled and controlled power outages implemented by the electricity supplier, has become a significant challenge for many students in South Africa, particularly those who rely on eLearning. As discussed earlier, maintaining backup battery power to keep network towers running during load shedding for clients to stay connected, are costing companies millions, limiting the focus to larger metro areas (Dludla, 2023).

The following response supports this:

R5: *“It affects my network, and it sometimes doesn't allow me to attend online lectures because of flat devices”*

Power cuts cause delays or interruptions in online class sessions, which can affect the standard of students' educational experiences. Without a reliable and stable power supply, students may find it difficult to participate in online discussions, access online course materials, or submit assignments on time, which negatively impacts their academic performance.

Furthermore, students face difficulties accessing online learning materials because of load shedding experienced in South Africa. Their learning experience suffers from this situation as the power outages cause students to miss important information which results in academic disruption. For instance, one of the difficulties students are needing to modify their study routines and schedules to work around power interruptions. Additionally, the power outages create problems for students to participate in extracurricular activities which results in a stressful university experience. Contributing to the challenge is findings from a previous study that revealed during high levels of loadshedding, students are obliged to spend more on mobile data to complete online tasks, especially during the assessment period (Dludla,2023).

The following response supports this:

R12: *“Negatively. Classes are postponed or cut short due to load shedding. Studying during the night is also made difficult as all lights are off and I have to rely on my phone's torch light. Network is bad and I am unable to join online sessions and tests are pushed back to accommodate everyone's load shedding’s schedule.”*

In conclusion, the research emphasised that eLearning has had a profound influence on student flexibility in higher education. It has made it possible for students to pursue their education on their own terms, providing them with the flexibility to study at their own pace and on their own schedule. Although eLearning has its challenges, the advantages it provides have made it a popular alternative to traditional classroom-based learning. Notwithstanding this, load shedding has a significant impact on eLearning in South Africa, causing disruptions in online classes, limiting access to online resources, creating time management challenges, and increasing data costs.

5.3 How does eLearning influence students in higher education in the Western Cape?

The findings show that the success of eLearning depends on several variables, encompassing the Internet's speed and quality, the availability to its resources online, and the presence of suitable learning infrastructures, and the readiness of both lecturers and students to adopt this technology.

Since eLearning requires Internet connectivity devices, many students also claim that eLearning has enhanced the use and adoption of technology. While other students have a positive perception of eLearning, many have demonstrated that this method's primary goal is to pass knowledge and agree that it is an effective way to pass knowledge. There are also many factors that influence the eLearning system. One of the main elements is the place of residence. Students who reside at student accommodation use the residence Wi-Fi to access eLearning, and those who reside at home, mostly use their own money to buy data. This then means that when they do not have data, they cannot participate live in class, and this may make them unfit to be able to ask relevant questions or to get assistance in time. The availability and the nature of online access gadgets also influence students at a higher education institution.

The following response supports this:
R7: *"The only challenge with eLearning activities is when you have network problems. Sometimes the area that you live in if it is a noisy place. It will be hard for you to participate. Also, when you do not have a smartphone, it is hard to participate in online activities."*

The majority of the respondents mentioned that the problem with eLearning is distractions, compared to face-to-face classes that take place in an environment conducive for teaching and learning. This finding confirms previous literature findings regarding the complexities of eLearning and remaining focused (Husaj, 2020). Students who reside at home suffered more distraction compared to students who reside in student accommodation.

The following response supports this:
R5: "Easy to lose concentration and give in to distractions and lose motivation when at home. One feels like being in a face-to-face class matters more than attending an online class. This is proven with high absenteeism in online classes. Many students do not see the necessity to join a live online class due to a recording being made readily available soon after. However, one misses the chance to ask questions and learn from

lecturers and fellow students in real time and truly participate in a safe learning environment. Students hide behind their devices and delay in giving quick responses to lecturers and student queries."

5.3.1 Performance

Analysis of the collected data showed that eLearning is considered more effective and useful than the use of traditional teaching methods to assist students enrolled in a higher education institution in the Western Cape. In other words, students' performance and awareness of the course's learning materials provided via online platforms such as Blackboard is much more compelling than the same content that is distributed using traditional ways of teaching. This success and influence can be referred to as a set of characteristics that are related to eLearning. Smedley (2010) asserts that the use of eLearning gives educational institutions and students freedom in the way that learning materials are delivered and received.

The following responses by and supports this.
R6: "eLearning is a great and convenient way of studying".
R13: *"I would say it has been good and fun to be online, the world is improving with technology so should we. I enjoy anything computer-based and applications. Plus, flexibility in terms of access to online materials."*
"I have really enjoyed eLearning. The shift away from face to face made me more productive in terms of my efforts with my work. Travelling is eliminated and it gives me more time and energy to complete work more effectively and efficiently."

5.3.2 Student motivation through eLearning

As in the following studies by Ferrer et al. (2020), Chiu et al. (2021), Esra and Sevilen (2021), and Susilawati and Supriyatno (2020), students in this study felt more motivated by eLearning compared to traditional ways of learning. One student mentioned that eLearning gives one time to look at learning materials in their own space and it also eliminates travelling costs and save energy which.

In summary, academic performance of students engaged in eLearning activities rely on being in an environment conducive to learning and remaining motivated. Although students highlighted challenges faced, they felt positive about gaining knowledge and skills through online learning.

5.4 What are the benefits of eLearning for students from a higher education institution in the Western Cape?

The findings revealed that the majority of the respondents use their phones for eLearning. The use of mobile phones for the learning process can be impacted by eLearning in both positive and negative ways. Some of the effects that came out of the study with using phones and tablets when doing eLearning, was that students can access eLearning materials at any time and from any location. This can provide learners with increased flexibility and convenience, allowing them to learn at their own pace. One of the benefits of using mobile phones are that they deliver an engaging learning environment where students can access multiple educational resources including podcasts and online discussion boards and recorded lectures in the palm of their hands. Moreover, mobile devices enable students to enhance their learning experience while deepening their understanding of the subject matter. Another benefit is that eLearning allows students to learn at their own speed and schedule which was previously mentioned. Students who adapt their learning approach can successfully balance their academic responsibilities with their work and family responsibilities, which confirms previous research findings by Dhawan (2020) mentioned earlier in Chapter 2.

The following response supports this:
R28: *“Now I can listen to my classes while I am nursing my kids as well.”*

With the advent of eLearning, students who might not have been able to attend traditional brick-and-mortar colleges because of geographic, financial, or personal barriers, now have the opportunity to pursue their academic goals.

At the same time, the learning experiences on eLearning platforms are designed to match the specific requirements of each student. The customised educational approach enables students to learn and remember information better. For instance, the educational tools on eLearning platforms combine videos, quizzes and simulations, to create interactive learning experiences that enhance student engagement. Therefore, increasing online participation leads to higher motivation levels among students. At the same time, eLearning platforms provide students immediate feedback on some tasks which helps them track their progress while pinpointing their remaining development needs. This instant feedback encourages students to stay motivated and focused on their academic goals. eLearning has motivated students by providing them with a flexible, accessible, personalised, engaging, and a learning atmosphere full of feedback that encourages their success in the online classroom.

5.5 What can be done to improve student performance during eLearning at a higher education institution in the Western Cape?

The findings in this study provide limited answers to this research question. Considering the large number of students that remained undecided for a number of key statement questions to gather from them what their experiences are and how academic performance can improve through eLearning, is thought provoking. Whether students who remained undecided is due to having mixed feelings about eLearning activities or there are underlying issues that were not revealed in this study, calls for further investigation.

Findings in this study revealed that 64% of respondents stated that eLearning has created a conducive environment to improve students' academic performance in higher education institution. This was followed by 53% of respondents that established that their participation in learning activities improved during eLearning classes. This is in line with the studies that was conducted by Kajee & Balfour (2011), Hazwani et al. (2020), Gocotano et al. (2021). Hazwani et al. (2020) that reported that the implementation of eLearning has been a benefit to some students.

The findings in this study revealed eLearning have its challenges, including the need for self-discipline and motivation, the lack of direct communication between students and lectures, and technical difficulties. Despite this, previous studies conducted have

also indicated that eLearning has a positive impact on students in higher education. However, the effectiveness of eLearning among higher institution students may differ from that of distance education students. One mature student pointed out that one can reason clearly and handle disputes diplomatically, especially while developing academic self-discipline in the eLearning environment. While using a virtual world to learn every day is a completely new experience for some students, they must therefore apply self-directed learning while placing a strong emphasis on self-discipline in their academic pursuits.

This means that students need to take the initiative to stay on track with their coursework without the structure of traditional classroom learning. Another significant challenge of eLearning is the lack of face-to-face interaction with instructors. A sense of alienation and detachment from the learning group may result from this lack of interaction.

5.6 Discussion of the Tables

The Section compares analysed data in the form of two-way tables will be discussed into detailed to determine any connection between variables.
Table 4 compares the association between where students live and how much money they spend on mobile data during eLearning activities. The majority of students living in CPUT residences spend between R40 and R1000 on mobile data. The source of this might be load shedding, which forces responders to spend this money on mobile data. When the power goes out, the responders must use their mobile data because Wi-Fi does not operate at residence.

Table 5 investigates the relationship between the amount of time students have studied at CPUT and the duration of their computer use. The majority of respondents attended CPUT for one to four years and had at least five years of computer experience. One explanation for this is because they took the CAT in high school, which provided them with computer literacy prior to starting university.

Table 6 shows how much improved virtual communication between students and professors has gotten in relation to the number of years that students have utilized

computers. The fact that most students have been using computers for more than five years might be the reason their interactions with lecturers during e-learning have improved.

Table 7 presents the respondents' choice among the three options for the duration of time they have been using computers. The majority of respondents said that they choose the mix; this might be because both support students' academic development. The online environment limits students' ability to debate course content with lecturers, which is something most love doing. The duration of each session must be known by the lecturer due to load shedding, network issues, and other limitations on the data of other students. Convenience is the advantage of being able to attend classes from home, though. For instance, it is best to attend in-person classes for a practical module like business application; nevertheless, online education works better for another module.

5.7 Chapter Summary

The chapter emphasised how significantly online education has influenced students' flexibility in higher education. With the freedom to study at their own pace and on their own schedule, it has given students the chance to pursue their education on their own terms. While there are drawbacks to eLearning, its benefits have made it a well-liked substitute for conventional classroom-based education.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The purpose of this study was to ascertain how eLearning affects students' academic performance at a Western Cape higher education institution. The Faculty of Business and Management Sciences' department of Business and Information Administration is where the study was conducted. As mentioned in chapter 1, eLearning has grown in importance within higher education institutions, giving students globally more access to education and new opportunities. The questionnaire gathered pivotal information from the targeted population.

Chapter 1 introduced the study, problem statement, rationale and significance of the study, objectives of the study, the main research question, sub-questions, research methodology, and concept definitions. Chapter 2 explored the existing literature on eLearning in higher education institutions. Chapter 3 described in detail the research design and methodology used in the study. Chapter 4 reported on the findings and analysis. Chapter 5 presented the interpretation of the results in detail, and Chapter 6 provides conclusions and recommendations for future studies.

The conclusion and recommendations made in this chapter are based on the research questions addressed in this study.

6.2 Recommendations stemming from the study.

Recommendations are made, based on the findings in this study in an attempt to answer the research questions. It is hoped that the information will provide other higher education institutions with insight into how academic performance of students can improve through eLearning.

6.2.1 Provision of technical support

For students to have access to the required technology and be educated to use the eLearning platforms, it is a necessity that they receive sufficient technical support. A

good and effective learning environment for students depends on providing sufficient technical support for eLearning.

For this reason, it would be beneficial for the institution to incorporate a 24/7 eLearning help desk into existing IT support services which gives technical assistance dedicated to online teaching and learning to students. Furthermore, the recommended eLearning help desk should support users in-person and virtually and consist of well-trained staff who will be able to provide remote technical assistance to users regarding eLearning platforms, software, and hardware issues. Considering the rapid advancement of AI technology, perhaps a chatbot support service may be effective if students are provided with ongoing tutorials and training sessions about eLearning. The approach may possibly reduce technical issues that users encounter while their proficiency with eLearning tools grow. Scheduled maintenance of the eLearning platform and regular updates could be a strategy to reduce technical issues from happening. This can be done by performing software updates and hardware upgrades and security checks on a regular basis.

Another approach that the university of technology could consider is conducting frequent surveys to gather feedback from students and staff members to help identify areas to improve the platform. Ultimately, the success of eLearning depends on effective technical support to provide students with a positive and productive eLearning experience.

6.2.2 Incorporate Interactive Learning Materials

Most of the students mentioned that they have difficulty concentrating when it comes to eLearning. By incorporating interactive learning materials can be helpful to facilitate engagement. One suggestion could be the addition of multimedia elements such as audio recordings, animations interactive simulations and films to boost learning engagement. These components can enhance the effectiveness of teaching complex concepts while creating an interactive learning space. The gamification strategies by Kapp (2012) described in Chapter 2 could be adapted to use as motivational tools for students. The system provides learners with a motivation to complete their assignments and participate in online activities. Furthermore, incorporating interactive

learning materials in eLearning will require lecturers to plan carefully while considering the needs and preferences of their learners.

6.2.3 Virtual Reality

Respondents revealed that eLearning creates additional distractions and interruptions which negatively affect student focus on their academic work. Introducing virtual reality, which Shoaib (2021) found to be beneficial and forward-looking, is perhaps a solution to minimise distractions in eLearning for students enrolled in a practical subject.

Virtual reality offers immersive and interactive learning experiences that enhance student engagement with educational information. It also enables global cooperation by bringing together instructors and students from different areas of the world in shared virtual spaces. Using a combination of multimedia, virtual reality, interactive assessments, and collaborative learning, and personalisation, lecturers can design successful and engaging online courses that encourage active learning and enhance student performance. Although there are many ways that virtual reality (VR) can improve academic achievement, it's vital to consider constraints like load shedding and high costs.

6.2.4 Encourage Collaboration and Peer Learning

University students expressed how they are faced with challenges in working collaboratively on group assignments because of eLearning. As Yadgarovna (2020) reported, group work enables the production of diverse ideas and opinions and is therefore recommended. Also, the module aspect becomes more easier to understand when students learn from each other through peer learning and collaboration. Therefore, it is important for students to use Blackboard eLearning tools for group assignments to work together on online discussion forums for better peer learning. The essential components of eLearning include peer learning and collaboration because they help students solve problems together while building a sense of community.

Furthermore, the following strategies could help promote cooperation and peer education in eLearning: Lecturers should create an eLearning space that engages

students through peer learning and collaborative activities to make the environment more dynamic and interesting. The approaches thus enable students to work together when addressing problems. Group projects are essential as they serve as fundamental tool for students to solve problems as a team. Overall, this method enables students to build workplace teambuilding skills through collaborative work toward a common goal. Additionally, students create community bonds which supports their collaborative learning process. Online peer reviews should be implemented because they allow students to review and provide feedback on each other's work through digital platforms. The method enables students to develop critical thinking skills while receiving constructive feedback that helps them improve their assignment performance.

The implementation of group presentations together with case studies and role-playing exercises will help students develop collaborative problem-solving skills. Students need to establish virtual study groups which allow them to meet online to discuss course material and share their understanding of the subject. They can benefit from online office hours because these sessions enable them to meet with instructors or teaching assistants for both asking questions and receiving work feedback. Similarly, students can also have the chance to work with their classmates on classroom material through this approach.

Thus, the development of belonging requires support for student connection and teamwork to establish community feeling. Moreover, the implementation of the suggestions can transform eLearning into a more engaging, personalised and effective learning experience for students.

6.2.5 Adaptive learning systems

eLearning can be personalised through adaptive learning systems which enable students to learn at their own pace by interacting with course material at any speed they choose thus spending more time on difficult topics and less time on familiar material.

Adaptive learning systems modify educational content according to student requirements and achievement levels. These systems offer customised

recommendations for additional resources, assessments and activities to help students learn. The use of learning analytics enables instructors to track student progress while detecting specific areas where students require extra support. Through analytics systems, instructors can detect student behaviour patterns to modify their course materials effectively.

It is important that students have the opportunity to create their own educational plans which match their personal goals and interests. Students should perhaps have access to multiple assignment, activity and assessment choices which allow them to select tasks that support their learning objectives. This kind of approach could help students develop self-assurance and motivation while making them accountable for their educational journey. Furthermore, it is suggested that the eLearning platform provide students with customised learning resources including articles, videos and interactive simulations that match their individual interests and learning preferences. The implementation of personalised learning in eLearning systems demands thorough planning to address individual learner requirements and preferences.

With regards to online teaching strategies, lecturers can perhaps develop an engaging online learning experience through the combination of self-paced adaptive learning systems, virtual reality and learning analytics. Introducing personal learning paths and personalised learning resources could add value to the students' eLearning experience.

Considering the loadshedding situation in South Africa, it is crucial for the institution to establish a reliable power backup system at all campuses and residences to ensure minimal disruptions with eLearning activities during power outages.

As new ways of learning advances, so too it is important for students to develop flexibility in their study plans while purchasing backup power equipment and maintain open communication with their teachers and peers to receive updates about their academic progress. Ultimately, the South African government must make addressing load shedding their priority to help students with reliable power access for continuous learning.

6.2.6 Continuing a blended learning approach in the future.

The findings revealed that students were two-minded about the shift from the traditional face-to-face classroom to eLearning. Considering that the need to strike a balance in teaching and learning was discussed in Chapter 2, as well as the findings discussed in Chapter 5 on how to improve the academic performance of students, it is recommended that the institution continue with a blended learning approach.

6.3 Limitations of the research study

The study focused only on one programme in one institution. If the findings were able to be compared with other departments, and similar higher education institutions, it would be more meaningful. Lecturers were excluded from this study. The researcher targeted two higher education institutions in the Western Cape, but the other one declined.

6.4 Recommendations for future research

The findings and limitations of the study discussed led to identifying future research. The following recommendations will give a deeper meaning to this study:

- A more qualitative study, to gain a deeper understanding from students on why academic performance improved during eLearning.
- A study focusing on all students and academics across all faculties within the institution is needed.
- A research study that will include all the higher education institutions in the Western Cape

6.5 Conclusion

eLearning has become a crucial factor of higher education institutions. Although the findings revealed that eLearning has many advantages, including flexibility in scheduling and personalised learning experiences, there are challenges, including the need for self-discipline and motivation, inadequate in-person communication with lecturers, and technical difficulties that have made many students lose focus. To

improve the eLearning experience for students, adequate technical support should be provided, instructor-student interaction should be increased, and interactive learning materials should be incorporated. eLearning has the potential to transform education in South Africa by improving access to education, improving the quality of education, and improving the employability of students. Addressing the challenges facing eLearning in Africa will require collaborative efforts from governments, educators, and other stakeholders, considering the load shedding situation and the prohibitive cost of data. It is essential to develop customised eLearning programmes that meet the needs of South African students and provide them with the skills and knowledge required to succeed in the 21st Century economy.

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APPENDIX A: QUESTIONNAIRE

The influence of eLearning on students at a higher educational institution in the Western Cape.

I hereby request a few minutes of your time to participate in my study. I am currently completing a Masters' program at the Cape Peninsula University of Technology in the department of Business and Information Administration.

The aim of this study is to determine the impact of eLearning on students at a higher education institution in the Western Cape. Part of the research process requires me to conduct a survey.

I have obtained the necessary permissions and ethical clearance, from the Faculty of Business and Management Sciences' Research Committee, to conduct my research. Since you are registered for the Business Applications subject, which was chosen as the focus area in study, the information you provide will add value to the project. Confidentiality and anonymity are assured. Participation in the project is voluntary and may be withdrawn at any time.

My research is conducted under the supervision of Dr. L. Kleinveldt.

Thank you for participating in my study.

SECTION A: PERSONAL INFORMATION

PLEASE SELECT THE APPLICABLE OPTIONS FOR EACH QUESTION IN THIS SECTION BELOW.

1. Kindly indicate your level of study.

Mark only one oval.

- 2nd year
- 3rd year
- Other

2. Please indicate your age from the range provided below.

Mark only one oval.

- 18 - 20
- 21 - 30
- 31- 40
- 41 - 50
- 51 +
- Other:

3. How do you prefer to be described?

Mark only one oval.

- Black
- Coloured
- White
- Indian
- Other

4. Kindly indicate your gender.

- Mark only one oval.
- Female
- Male
- Other:

5. Please indicate where you are residing during your studies

Mark only one oval.

- CPUT student residences
- Private accommodation in the Western Cape
- I live at home
- I live with relatives
- I am currently living in another province other:

6. How long have you been studying at CPUT? Please state in the space below.

- 1 year
- 4 years
- 4 - 6 years
- 6 + years
- Other

7. How many years have you used computers, please indicate below.

Mark only one oval.

- 5 years
- 6 - 10 years
- 11 - 15 years
- 16 + years

Section B: Perception and experience of face-to-face versus online classes

This section focuses on your perception and experience of face to face and eLearning.

8. Kindly share your perceptions and experiences of eLearning activities?

9. Please share what your experience has been, since starting out at CPUT with face-to-face classes and then shifting to eLearning due to the COVID-19 Pandemic?

10. Considering your experience with both face-to-face and eLearning activities, kindly share what your preference (face-to-face, online or a combination) would be at this stage in studies and why?

SECTION C: FOR EACH OF THE STATEMENTS BELOW, SELECT THE MOST APPROPRIATE OPTION RELEVANT TO YOU

NB: 1= strongly agree; 2 = Agree; 3= Neutral; 4= Disagree; 5= strongly disagree.

11. ELearning is a new teaching and learning model at CPUT.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

12. It is difficult to grasp the content of the work taught via eLearning.

Mark only one oval.

- Strongly agree
- Agree

- Neutral
- Disagree

13. Having access to recordings of lectures made it easy for me to understand the work done in class.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. I think that eLearning is beneficial for all students.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree

15. In my opinion, ELearning started as an exclusive method that benefited privileged students.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

16. ELearning made it easy for me to engage with my fellow classmates.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

17. eLearning is rapidly becoming one of the most effective ways to impart education.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

18. It became very convenient for me to attend online classes.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

19. Online classes are not completely reliable as Internet connectivity plays a vital role.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

20. It is easy to understand the work done in an eLearning environment.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

21. eLearning created a conducive environment for me to improve my academic performance.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

22. I am inspired to use a variety of learning approaches through eLearning.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree.

23. I believe that the university has an appropriate implementation plan for eLearning.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

24. I feel that I got the necessary support from the university to perform well in ELearning activities. Strongly disagree

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

25. Based on my experience so far, there is no major difference between contact (face-to-face) learning and eLearning.

Mark only one oval.

- Strongly agree
- Agree

- Neutral
- Disagree
- Strongly disagree

26. Student participation improved because of eLearning.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

27. My level of understanding improved when participating in online classes.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

28. I am more committed to my subjects in the online environment

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

29. I performed better in online assessments than sit-down exams.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

30. ELearning did not improve academic performance of students, in my opinion.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

31. eLearning enabled students to work independently.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

32. I can manage my time better when completing online assignments.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

33. I find it easy to engage with other students during eLearning.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

34. eLearning reduces stress levels among students, as many can communicate more freely

Mark only one oval.

- Strongly agree

- Agree
- Neutral
- Disagree
- Strongly disagree

35. I find it easy to engage with other students during eLearning.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

36. I have learnt to manage my time through eLearning.

Mark only one oval.

- Strongly agree.
- Agree
- Neutral
- Disagree
- Strongly disagree

37. eLearning improved virtual communication between students and lecturers

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

38 ELearning made it difficult to work in groups.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

39. I got opportunities to explore new learning strategies.

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

40. My participation in learning activities improved because of eLearning

Mark only one oval.

- Strongly agree
- Agree
- Neutral
- Disagree

SECTION D: Focusing on Tools, skills, and support accessible to students doing eLearning and statement questions.

41. **I have obtained the following skills before starting with online learning activities. More than one option may be selected.**

Check all that apply.

- ☐ Typing
- ☐ Communication skills
- ☐ Use of Internet
- ☐ Creating word document
- ☐ Reading and Writing
- ☐ Time management skills
- ☐ Other, Kindly specify:

42. **I have the following devices for Online Learning. Select as many as relevant to you.**

Check all that apply.

- [ ] Desktop
- [ ] Smart phones
- [ ] Tablet
- [ ] Notebook computers
- [ ] Other Please specify

43. **Indicate how you go about connecting to the Internet for online learning. More than one may be selected.**

Check all that apply.

- [ ] I access via CPUT WIFI at the student residence
- [ ] I use the VPN option
- [ ] I use my mobile data
- [ ] I go to an Internet Cafe
- [ ] I have Fibre/LTE/ connection at home
- [ ] Other: _____

44. **How much money do you spend monthly on mobile data for online learning?**

_____

.

45. **What other apps besides the official ones (Blackboard, CPUT etc.) are you using to participate in online learning activities?**

46. **How is Loadshedding affecting your online learning activities?**

47. **Is Blackboard a suitable platform for online teaching and learning?**

Mark only one oval.

- ◯ Yes
- ◯ No

48. **Do you believe that your Lecturers have the skills to teach online?**

Mark only one oval.

- ◯ Yes
- ◯ No

49. **Indicate what online learning activities you perform using your mobile device. More than one option may be selected.**

Check all that apply.

- [ ] Access online classes via Blackboard Collaborate / TEAMS
- [ ] Access content via Blackboard App
- [ ] Communicate with classmates via the Subject's WhatsApp Group
- [ ] Access information via CPUT Libraries
- [ ] Complete quizzes
- [ ] Other: _____

50. **PLEASE ADD ANY COMMENT RELEVANT TO MY INVESTIGATION**

_____

_____

_____

_____

_____

Thank you for your time and participation in my research project If you have any questions regarding this survey, please contact the researcher, Nokonwaba Wanana, at 0679899639 / (021) 460 1754 or email me at 214068935@mycput.ac.za Or contact my supervisor, Dr. L. Kleinveldt, KleinveldtL@cput.ac.za.

APPENDIX B: ETHICAL CLEARANCE CERTIFICATE

Cape Peninsula University of Technology

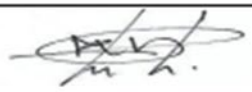
P.O. Box 1906 | Bellville 7535
Symphony Road Bellville 7535
South Africa
Tel: +27 21 4603291
Email: fbmsethics@cput.ac.za

Office of the Chairperson Research Ethics Committee	FACULTY: BUSINESS AND MANAGEMENT SCIENCES

The Faculty's Research Ethics Committee (FREC) on **16 November 2021**, ethics **APPROVAL** was granted to **Nokonwaba Wanana (214068935)** for a research activity for **Master of Business and Information Administration** at the Cape Peninsula University of Technology.

Title of project:	The Influence of e-learning on students at a higher educational institute in the Western Cape Researcher (s): Prof V Naicker

Decision: APPROVED

	30 November 2021
Signed: Chairperson: Research Ethics Committee	Date

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the CPUT Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study requires that the researcher stops the study and immediately informs the chairperson of the relevant Faculty Ethics Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines, and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, notably compliance with the Bill of Rights as provided for in the Constitution of the Republic of South Africa, 1996 (the Constitution) and where applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003 and/or other legislations that is relevant.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after two (2) years for Masters and Doctorate research project from the date of issue of the Ethics Certificate. Submission of a completed research ethics progress report (REC 6) will constitute an application for renewal of Ethics Research Committee approval.

Clearance Certificate No | 2021_FBMSREC 106

APPENDIX C: CONSENT LETTER

Date: 07/10/2021

For Attention: Prof Visvanathan Naicker.

RE: Request for permission to gather data on research thesis for Master of Business & Information Administration: The Influence of e-learning on students at a higher educational institute in the Western Cape.

I am a registered MBIA student at CPUT. I am conducting a thesis-based research on the "Influence of e-learning on students at a higher educational institute in the Western Cape" in fulfillment of my MBIA degree. As part of this study I would like to conduct survey interviews, in the form of questionnaires, with staff members and third year students from within the Business Information and Administration Department.

The questionnaires will aim to establish what the understanding of the influence associated with E-Learning within a University in the Western Cape

It would be greatly appreciated if you would grant me permission to conduct the study in the BIA Department. I trust that the results of this study would aid management to have an improved understanding of E-learning and how it affects the students.
The sample size is envisaged to be between 50 and 80. The researcher will abide by the Cape Peninsula University of Technology's guiding principles for Research Ethics and the Code of Ethics for Research on Human participants as required by the Health and Wellness Sciences Research Ethics Committee.

It is hoped that this research could contribute to previous literature by (a) providing new insights that influences the continuation to establish what the understanding of the influence associated with E-Learning at a University in the Western Cape.

I attach a draft sample questionnaire so that you may see what type of questions the staff members and students will answer.

Yours faithfully

Nokonwaba Wanana

Permission has been granted.
Dr Sharhidd Taliep (Research Manager FBMS)
Signed:

Date: 11 Oct2021

APPENDIX D: Language editor's Certificate

FRANCI CRONJE

(PhD, Media Studies)

Author's Development Editor

Cell: 0825573647 Email: franci.cronje@gmail.com

Editor's Certificate

Date: 9 September 2023

To whom it may concern:

I hereby confirm that I have edited the master's dissertation:

The influence of eLearning on students at a higher educational institution in the Western Cape

Author: **Nokonwaba Wanana**

The author ultimately decided whether to accept or decline any recommendations made by the editor, and it always remains the author's responsibility to confirm the accuracy and originality of the completed work.

Signed:

Dr Franci Cronje

PhD (Media Studies); MA(FA); MPhil in Higher Education

Email: franci.cronje@gmail.com